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PROCEEDINGS

25th JULY 1968

The President, Mr. B. GOATER, in the Chair

The death was announced of Mr. J. A. Baker, who had left £25 to the Society, together with his library.

A welcome was extended by the President to Dr. Kasy of the Vienna Natural History Museum.

EXHIBITS

Mr. A. E. GARDNER—(1) The first drawer of Carabidae from the Dr. A. M. Massee bequest of British Coleoptera. (2) The following interesting Coleoptera taken recently: *Hygronoma dimidiata* (Grav.) (Staphylinidae) from reed beds; *Hydraena testacea* Curt. (Hydrophilidae) from a moorhen's nest and submerged weed; *Elmis maugei* Bedel. (Dryopidae) from a moorhen's nest and by sweeping riverside vegetation; *Lissodema quadripustulatum* (Marsh.) and *L. cursor* (Gyll.) (Salpingidae), swept from under ash; *Cionus scrophulariae* (L.) and *C. alauda* (Herbst.) (Curculionidae) from *Scrophularia*: all from Stockbridge, Hants, 20.vii.68. *Cionus hortulanus* (Geof.) and *Cleopus pulchellus* (Herbst) from *Scrophularia*, New Forest, Hants, 6.vii.68.

Mr. D. O. CHANTER—An example of *Mysticoptera sexalata* Retz (Lep., Geometridae) from Irstead, Norfolk, 11.vi.64 with pockets on the hindwings typical of this species.

Mr. J. A. C. GREENWOOD—*Aphantopus hyperantus* L. (Lep., Satyridae), with the underside spots almost invisible, ab. *caeca* Fuchs (extreme), taken by Mrs. D. F. Greenwood at Thursley Common, Surrey, 13.vii.68.

COMMUNICATIONS

Mr. E. P. WILTSHIRE read a report of the visit he had made to Cuxton, Kent, 20.vii.68, to look for *Cucullia scrophulariae* Schiff. (Lep., Noctuidae). He did not find the moth but found its food plant quite common in the woods. He ended by saying that he felt the moth had probably died out in N. Kent and the best chance of finding it in England would be nearer the south or east coasts, where new arrivals might establish themselves.

The PRESIDENT reported on the occurrence of some migrant moths: *Plusia ni* Hübn. (Plusiidae), *Eublemma parva* Hübn. (Plusiidae) and *Daphnis nerii* L. (Sphingidae) together with *Heliothis peltigera* Schiff. (Noctuidae) and *Laphygma exigua* Hübn. (Noctuidae) which had occurred in numbers. He went on to add that Mr. E. W. Classey had seen *Eublemma parva* in Hampton, Middx., and wondered if they would breed.

Mr. P. N. CROW said that Mr. H. Coles had reported to him that he had taken five *Plusia ni* Hübn., including two females.

An opinion was expressed by the President that *Heliothis peltigera* Hübn. larvae should be found later at Dungeness, Kent and Eastbourne, Sussex.

A discussion took place on Lepidoptera with extra wings and with wings missing.

Mr. T. G. HOWARTH commenting on Mr. R. W. J. Uffen's reference to dead pines in Morden Bog in his report of the Dorset field meeting read an extract

from an article by W. Parkinson-Curtis (1950, *Ent. Rec.*, 62:188) concerning *Coscinia cribrum* L. and how the Forestry Commission had altered the locality known to him to make it less unsuitable for conifers; this means the Royal Fern (*Osmunda regalis* L.) would die out there. The article went on to refer to the destruction wrought by the Forestry Commission in Morden Bog.

A discussion on 'Collecting Lepidoptera' was led by Mr. S. N. A. JACOBS.

12th SEPTEMBER 1968

The President, Mr. B. GOATER, in the Chair

EXHIBITS

The PRESIDENT—(1) A male *Polyommatus icarus* Rott. (Lep., Lycaenidae) found at night resting on grass on the sandhills at Sumburgh, Shetland, 17.viii.68. Though there have been rumours of its occurrence on these sandhills, this is the first definite record of the species in Shetland. (2) A series of *Carsia sororiata* Hübn. (Lep., Geometridae) taken by day on Hill of Deepdale, Shetland, 17.viii.68, where there is a strong colony amongst the stunted bilberry (*Vaccinium myrtillus* L.). One previous example was taken by Mr. Austin Richardson at Vallerfield, 17.viii.50, and the species was recorded by J. Jenner Weir as being taken in Shetland by MacArthur in 1881, but the whereabouts of his specimen or specimens is unknown.

Mr. R. F. BRETHERTON—Exhibited two species of Neuroptera caught in Greece in the second half of June 1968, and asked for help in identifying them. He remarked that one of them closely resembled the insect depicted on the Society's tie. He pointed out that the thin appendages are really greatly elongated hind-wings.

Mr. M. P. CLIFTON—A full-grown larva of *Dione juno* Cr. (Lep.) feeding on *Passiflora* (Passion Flower) and which had been sent as a young larva from Rio de Janeiro, Brazil.

Mr. C. O. HAMMOND—The large 'Velvet Ant' (*Mutilla europaea* L.). The winged male taken at Leigh-on-Sea, Essex, 29.viii.68, and the wingless female at Fleet Pond, Hants, 20.vii.50.

Mr. J. A. C. GREENWOOD—The following Lepidoptera all taken at mercury vapour light, 20.vii.68, near Duncton, Sussex. (1) One example of *Melanthis procellata* Schiff. (Geometridae). The white areas of the forewings and the hind-wings were replaced by brownish grey through which the normal brown markings showed as a darker shade. The only white marking was the squarish spot on the outer edge of the forewings. A normal example was also shown for comparison. (2) A form of *Ectropis biundularia* Borkh. (*bistortata* auct.) (Geometridae). The wings were uniformly grey with the white marginal line showing prominently. A more normally marked example was shown for comparison. (3) An example of *Nola albula* Schiff. (Notodontidae). This was the first sighting of this species during five years' recording in the area. The specimen seemed in fresh condition and was presumably breeding close by.

Mr. C. F. DEWHURST—Two larval cases of the 'bag-worm' moth, *Amicta murina* Klug. (Lep., Psychidae) from the Sahara Desert.

Lt. Comdr. W. GILCHRIST—A tape recording of the squeak of *Acherontia atropos* L. (Lep., Sphingidae).

Mr. T. G. HOWARTH—The right fore and hindwings of an example of *Nymphalis antiopa* L. (Lep., Nymphalidae) which were found on the lawn of a house at

Wentworth, Surrey, on the evening of 8th September by Mr. A. H. Bishop of Sunninghill, Berks. This specimen, or a 'large dark butterfly', had been seen at a window of the house the previous day. The wings though worn were entire and had portions of the basal attachments to the thorax still present. The borders of the wings were a pale cream typical of specimens caught in Britain.

Mr. A. E. GARDNER—A series of the new grasshopper, *Stenobothrus stigmaticus* Ramb. (Salt., Acrididae) from Dreswick Point, Langness Peninsula, I.o.M., 27.vii.68.

COMMUNICATIONS

The PRESIDENT remarked on a migration of Nutcrackers, *Nucifraga caryocatactes* L., from Siberia and said that he had seen one recently north of Southwold, Suffolk. He added that this invasion of Nutcrackers had been predicted by Finnish ornithologists. Whilst in Suffolk he had also seen *Vanessa atalanta* L. and *V. cardui* L., and Mr. Chipperfield had reported to him some *Nymphalis antiopa* L. and larvae of *Heliothis peltigera* Schiff. on Stinking Groundsel (*Senecio viscosus* L.) on the shore at Walberswick, Suffolk.

There followed a discussion during which members reported various Lepidoptera including *Vanessa cardui* L., *V. io* L., and the increase in numbers of *Aglaia urticae* L. (Lep., Nymphalidae).

The President stated that it had been a good year for Lepidoptera and that he had taken 17 previously unrecorded species in his garden this year. Mr. R. F. BRETHERTON said that numbers in his mercury vapour light trap were 50 per cent up on last year.

Mr. E. W. CLASSEY reported a late specimen of *Polygona c-album* L. (Lep., Nymphalidae) on buddleia in his garden. Dr. C. G. M. DE WORMS said that he had seen a specimen of *Vanessa atalanta* L. in a garden near Worthing, Sussex, and also an exposed bees' nest built in the open on a hut.

Mr. P. N. CROW said he had received many reports of *Apatura iris* L. (Lep., Nymphalidae) in Pamber Forest.

Referring to Mr. Dewhurst's 'Bag-worm' case Dr. B. J. MACNULTY said that those he had seen in S. Africa had been much more untidy, with longer sticks. Mr. S. N. A. JACOBS reported seeing a similar species in Teneriffe, Canary Islands, and Mr. T. G. HOWARTH added that yet another species makes a spiral case.

Mr. L. W. GEE gave a talk on 'The River Mole'.

26th SEPTEMBER 1968

The President, Mr. B. GOATER, in the Chair

The death was announced of Mr. H. G. Denvil.

EXHIBITS

Mr. T. J. G. HOMER—Young larvae of *Orgyia recens* Hubn. (Lep., Lymantriidae) taken from a hedge in Yorkshire, where they were feeding on oak.

Mr. S. A. WILLIAMS—(1) Three species of Coleoptera from Cym Idwal in the Snowdonia National Park, 1.vii.68: *Quedius fulvicollis* (Steph.), *Q. pseudo-umbrinus* Lohse (Staphylinidae) and *Cantharis paludosa* Fall. (Cantharidae). He said that all three species were associated with high ground. The two *Quedius* species were taken in flood refuse near the water's edge, and the *Cantharis*, which

is associated with *Caltha palustris* (marsh marigold), was taken on stones nearby. (2) Two examples of *Oeciacus hirundinis* Jen. (Hem., Cimicidae) from a house martin's nest at Dartford, Kent, 20.ix.68.

Mr. S. WAKELEY—The dipteron *Microchrysa polita* (L.) (Stratiomydæ) together with a pair of Chelifers (false scorpions) which were attached to the fly's legs when found in his moth trap at Camberwell, S. E. London, 5.viii.68.

Mr. A. E. STUBBS—Some Diptera bred in the spring of 1968 from rotten wood in dead beech: *Tanyptera atrata* L. (Tipulidae) from Ranmore Common, Surrey; and *Dictenidia bimaculata* L. (Tipulidae), *Xylota sylvarum* L. (Syrphidae) and *Myiatura florea* L. (Syrphidae) from Windsor Forest, Berks.

Mr. A. S. WHEELER—A small nest of a tree wasp from Inshriach Forest, taken in June 1968.

Mr. A. E. GARDNER—The following rare and local Coleoptera: *Helophorus walkeri* Sharp (Hydrophilidae), *Philonthus mannerheimi* Fauv. (Staphylinidae), and *Mycetoporus clavicornis* Steph. (Staphylinidae) from sphagnum, Brecon Beacons, Breconshire, above 2,000 ft, 1.ix.68, the *Helophorus* constituting a new record for Wales; *Gyrohypnus angustus* Steph. (Staphylinidae) several specimens from under stones, Traeth Mawr, Brecon Beacons, 1.ix.68; *Hypocyptus laeviusculus* Mann. (Staphylinidae) from sphagnum, Ireland, Begwyns, Radnorshire, 2.ix.68; *Eucinetus meridionalis* (Eucinetidae) a new species and family to Britain, one example was taken in litter near Lymington, S. Hants, 14.ix.68.

COMMUNICATIONS

Referring to the President's comments at the previous meeting on the Nut-cracker invasion Mr. M. W. F. TWEEDIE said these birds were very tame. The PRESIDENT confirmed this, observers having got very close to the birds. He also added that contrary to their normal feeding habits, one had been seen carrying a dead sparrow.

Mr. E. P. WILTSHIRE said that a quarry where the Durham form of *Aricia artaxerxes* F. (Lep., Lycaenidae) flew had been filled in by bulldozers and obliterated. This wanton act of tidying up is reported in *The Vasculum* 53:2 (July, 1968). This quarry was one of two sites where the local naturalists had recently reported the discovery of *Epipactis atrorubens* (Hoffm.), the Dark Red Helleborine, said to be local and rare from Derby and Brecon northwards. There were half a dozen other species of orchid there too, numbering thousands, and other beautiful limestone plants. The Durham form of *A. artaxerxes* F. is of particular scientific interest and a recent paper by Mr. Jarvis on the biology and taxonomy of the two species hitherto regarded as forms of *Aricia agestis* Schiff. appeared in 1966 (*Proc. S. Lond. ent. nat. Hist. Soc.*, 37:60).

He also said that at our last meeting Mr. T. G. Howarth exhibited wings of *Nymphalis antiopa* L. (Lep., Nymphalidae) taken in England recently, and it is believed he is making a communication about a second sighting of this butterfly at this meeting. It is therefore interesting and significant to read (1968, *J. Northants. nat. Hist. Soc.*, 35:25) that one of its members, J. H. Payne, bred and then released a number of Canadian Camberwell Beauties in 1967, and it is possible there is some connection between this year's records and those released.

Mr. T. G. HOWARTH replied that he did not think that the Camberwell Beauty he exhibited at the last meeting was the Canadian form because of the pale borders to the wings. He added that he had received reports of this species from the centre of the City of Oxford.

Dr. C. G. M. DE WORMS said that there is one record of hibernation for this

butterfly in Britain. He also said that the Canadian form has speckled borders. Mr. S. N. A. JACOBS reported that Canadian specimens aestivate in stooks and that he had seen them in Halifax, Nova Scotia, flying over snow.

Mr. R. W. J. UFFEN said that Col. A. M. Emmet had sent him cases of a coleophorid on *Juncus articulatus* L. from Ballyconneely, Co. Galway. The cases, which are on the floret, consist of a silk tube built to extend the floret. These cases are dark grey, unlike those of *C. taeniopennella* H.S., which are white. It was suggested that this could be *Coleophora tamesis* Waters, a species discovered in 1927 and well-known in Ireland.

Mr. Jacobs, referring to Mr. Wakely's exhibit, said that Mr. E. E. Syms had exhibited something similar a few years ago. He added that he had seen Chelifers on a micro sent from Tunisia. Mr. F. T. VALLINS reported seeing a fly, in a conservatory recently, with Chelifers attached.

The meeting concluded with an exhibition of coloured transparencies by Mr. E. W. CLASSEY, Mrs. P. MURPHY, Mr. M. W. F. TWEEDIE and Mr. A. S. WHEELER.

10th OCTOBER 1968

The President, Mr. B. GOATER, in the Chair

EXHIBITS

Mr. M. CLIFTON—Two aberrations of moths taken at mercury vapour light at Barnham, Sussex, 14.ix.68: a light form of *Plusia gamma* L. (Lep., Plusiidae) and *Opisthograptis luteolata* L. (Lep., Geometridae) with the red mark along the costa of the forewing.

Mr. A. G. M. BATTEN—A specimen of *Polychrisia moneta* F. ab. *maculata* Lempke (Lep., Plusiidae) taken at mercury vapour light at Hook Heath, Woking, 13.vi.68. This is the first record of this aberration in the u.k. It has been hitherto reported only from Apeldoorn, Holland.

Mr. S. N. A. JACOBS on behalf of Dr. P. J. ROCHE—A nest of the white-bellied swiftlet, *Collocalia esculenta* L., together with larvae and imagines of a pyralid moth, *Pyralis pictalis* Curt. These were sent by Dr. Roche having been taken by him in a sea cave on the small island of Pulau Jambongan, about five miles off the north coast of Sabah, Malaysia, while searching for cimicid bugs. Though he failed to find the bugs he took a few lepidopterous larvae, from which he bred the two imagines; he preserved the other larvae in alcohol. The white-bellied swiftlet is a species closely allied to the grey-rumped swiftlet, *C. francica* Gmelin, whose nests consist of practically pure saliva with only an odd feather or two incorporated, and it is these nests which are used in the East to make the bird's nest soup.

Mr. A. E. STUBBS—Two rare species of crane fly (Dipt., Tipulidae) taken in a light trap. Whilst looking through the catch of a Rothamsted light trap run by Mr. K. Harris at Wisley, Surrey, a number of interesting crane flies were found including a male *Tipula livida* v. d. Wulp and a female *Erioptera squalida* Loew. Both were in the catch for 2.vi.68. *T. livida* was added to the British list only in 1954 and is still known from a few localities only in the south of England. *E. squalida* is recorded only from Herts. and Yorkshire in the Handbook published by the Royal Entomological Society, and from Essex by R. M. Payne. But Mr. Stubbs found it at Runnymead, Surrey, earlier this year. He also showed a live arachnid of the Order Solifugae from Morocco. The arachnid was taken in August 1968 at Azron. In the full heat of the afternoon it was standing on its head

apparently trying to burrow into an asphalt road. More typically solifugids are found under stones.

Mr. A. E. GARDNER—A female mole cricket, *Gryllotalpa gryllotalpa* (L.) (Salt., Gryllotalpidae) taken at Guernsey, c.i., September 1968 by Dr. J. Newton.

COMMUNICATIONS

Mr. M. CLIFTON reported that he was breeding *Actias selene* Hübn. (Saturniidae) (the Moon Moth) and one larva had pupated without making a cocoon. He asked for previous records of this.

Mr. R. F. BRETHERTON said that one of his neighbours had a compost heap of rotting pears which attracted vanessid butterflies. He had counted 12 *Vanessa atalanta* L., three *Polygonia c-album* L., two *Nymphalids io* L., and two *Aglais urticae* L. on it at one time.

Mr. T. J. G. HOMER reported seeing *Pieris brassicae* L. larvae feeding on dock.

Dr. B. J. MACNULTY said that he had seen it feeding freely on Sea Rocket and Mr. Bretherton added Sea Cabbage to the list. Mr. T. G. HOWARTH commented that he had fed some larvae of *Apatele alni* L. on dock very successfully.

A paper outlining the life histories of West African Saturnidae and Lasiocampidae was read by Dr. B. J. MACNULTY.

ANNUAL EXHIBITION

2nd November 1968

As usual, most exhibits were of macrolepidoptera, and the quality and general interest was high. A striking feature was the evidence of the remarkable immigration of species, probably from southern Europe, during the first half of July. The exhibits included a species new to the British list, the spectacular noctuid *Rhyacia lucipeta* Schiff. (a specimen of which (Pl. 7, fig. 7) was taken by Mr. A. J. WIGHTMAN at Pulborough, Sussex, on 15th July), as well as *Lymantria dispar* L. from Cheshire, *Uiteheisa pulchella* L. from Jersey, several *Eublemma parva* Hübn., one from as far north as the Lake District, *Plusia ni* Hübn., *Heliothis peltigera* Schiff. and many *Laphygma exigua* Hübn., all caught about the same time. At different dates however, migrants also seem to have come from northern Europe—a pale *Eurois occulta* L. to Witley, Surrey on 30th July, and a magnificent *Apamea zollikoferi* Freyer (of which only about a dozen British examples are known) caught by Major-General Sir George Johnson in Angus on 13th September (Pl. 7, fig. 9). From either America or the Canary Islands came a *Danaus plexippus* L. taken at Portscatho, Cornwall on 4th October.

Among the resident species there were several exhibits of series of the noctuid, *Amphipyra berbera* Rungs, designed to show the differences between it and the familiar *A. pyramidea* L., from which it has only recently been separated. There were several of what must be the first-bred series of British *Coenophila subrosea* Steph. to be seen for over a century, and also some *Trisateles emortualis* Schiff., the first reared in Britain from the larvae and pupae whose discovery was illustrated in last year's exhibition. An *Arenostola fluxa* Hübn. from Yorkshire, well outside the previously known range of this species, added point to the skilful exhibit of the progress report and preliminary distribution maps for various British Lepidoptera which are now beginning to emerge from the Nature Conservancy's scheme for mapping distribution.

Variation and aberration had their usual prominent place. There was a

spectacular case showing recent additions to the Rothschild/Cockayne/Kettlewell Collection at Tring, including an *Amphipyra berbera* Rungs with grey hindwings as well as many aberrations of British butterflies. A continuation of Mr. R. W. WATSON's previous bred series of *Callimorpha jacobaeae* L. (Pl. 5), contained a series of the 'red' forms showing a continuation of this interesting strain. The series depicted the wide expression of the 'red' gene. Typical forms from these broods are very large and of a deep crimson. The following aberrations were shown, many being more extreme than in the 1967 generation: *coneyi* Watson, *intermedia* Watson, *flavarosea*, *nigrociliata*, *nigrofimbriata* Watson, *rubrasuffusa*. Included in the ab. *coneyi* series were some interesting asymmetrical forms with scalloped wings, pairing of which have been obtained. A male somatic mosaic with left side ab. *coneyi*, right side typical was shown. Other examples showed traces of typical coloration in streaks and blotches of varying intensity.

The ab. *flavarosea* series showed many beautiful forms. Ab. *nigrofimbriata* is very rare, only one occurring this season. Some of the ab. *nigrociliata* forms are of a very deep crimson, and some have black abdomens. The *rubrasuffusa* forms also show considerable variation, with the typical markings visible. The ground colour also varies this season from crimson to yellowish-buff. For a full description of this species see *Ent. Rec.* 79 & 80 (1967-8).

Mr. S. R. BOWDEN's cross-breeding of *Pieris napi* L. yielded a startling insect which at a distance looked more like a *Melanargia* than a *Pieris* (Pl. 6, fig. 2).

Mr. A. G. M. BATTEN showed the first British specimen of the extreme melanic *Plusia moneta* F. ab. *maculata* Lempke (Pl. 7, fig. 8), and Mr. ROGER HAYWARD an entirely black *Panaxia dominula* L. (Pl. 7, fig. 13), an *Apatele psi* L. with black wing margins, and an extreme aberration of *Hadena lepida* Esp.

An *Argynnis charlotta* Haw. male shown by Major-General LIPSCOMBE (Pl. 6, fig. 1) was an outstanding insect in which the normal brown of the upperside was replaced by creamy-buff.

Mr. A. D. A. RUSSWURM and Mr. H. G. M. MIDDLETON showed a series of *Coenonympha tullia* Mill. s.sp. *philoxenus* Esp. which included the three figured on plate 6 (figs 3, 4 & 5).

Amongst an exhibit of several *Thymelicus sylvestris* Poda put down by Mr. A. S. WHEELER was a very dark chocolate example (Pl. 6, fig. 6) taken at Newlands Corner, Surrey in July 1966.

A series of *Agrotis puta* Hübn. exhibited by Mr. S. A. KNILL-JONES to show the range of variation in this species included the example figured on plate 7 (fig. 10).

An aberrant example of *Biston betularia* L. (Pl. 7, fig. 11) formed part of the exhibit shown by Mr. A. G. M. BATTEN.

Mr. H. E. CHIPPERFIELD put down an exhibit of a number of interesting species amongst which was a heavily marked *Crocallis elinguaria* L. (Pl. 7, fig. 12).

Among very many aberrations of British butterflies melanic forms of *Melitaea cinxia* L. and *Clossiana selene* Schiff., and albino forms of *Coenonympha pamphilus* L. and *Thymelicus sylvestris* Poda were remarkable.

Finally one must note the growing evidence of the interest of members in Continental and other non-British Lepidoptera. There were displays of butterflies from central and southern France, Spain, south Germany, Poland and Greece, as well as from Grenada and Trinidad; and a particularly beautiful exhibit was a collection of Sphingidae and Catocalidae from Canada.

Exhibits predominantly of microlepidoptera were displayed by Messrs. S. WAKELY, E. C. PELHAM-CLINTON, H. N. MICHAELIS, J. M. CHALMERS-HUNT,

R. FAIRCLOUGH, H. E. CHIPPERFIELD, E. S. BRADFORD and Col. A. M. EMMET. Other members included some microlepidoptera in more comprehensive exhibits. It is only possible to mention some of the several hundred species which were on show.

From Wicken Fen, Cambridgeshire, Mr. J. M. Chalmers-Hunt and Mr. S. Wakely showed bred series of *Acleris lorquiniana* Dup. representing the three main forms: those with more or less unmarked forewings; those with a dark diagonal stripe; and those with an intense black discal spot; the last form is supposed to be confined to the summer brood, but it does in fact also occur sparingly among the autumnal moths. Col. Emmet and Mr. Wakely showed bred examples of the beautiful *Cosmopteryx druryella* Zell. and the former also showed what are believed to be the first bred specimens of *Ancylis paludana* Barr. and *Sorhagenia rhamniella* Zell.

Species from Suffolk were shown by Mr. Wakely, Mr. Chipperfield, Mr. Chalmers-Hunt and Col. Emmet. From Thorpeness and its neighbourhood the most interesting insects were an albino *Laspeyresia succedana* Schiff., *Nyctegretis achatinella* Hübn., *Mellisoblaptes zelleri* Joan., *Pediasia fascelinellus* Hübn. and *Chionodes fumatella* Dougl. A moth which aroused much interest was a unique form of *Aroga velocella* Dup. (Pl. 7, fig. 14) taken by Col. Emmet. This was at first thought to be *Scrobipalpa clintoni* Povolny, which has only recently been recorded as new to science from Scotland. The specimen has been presented by the captor to the British Museum (Nat. Hist.). From the Breck (Tuddenham and Barton Mills area) came bred specimens of *Laspeyresia zebeana* Ratz (Wakely) and *Exoteleia dodecella* L. (Wakely and Emmet) and captured specimens of *Telphusa humeralis* Zell. (Emmet).

Essex was represented by a number of species which included bred series of *Pseudococcyx posticana* Zett. from Debden (near Saffron Walden) and *Tischeria angusticolella* Dup. from Benfleet (Emmet and Wakely).

Kent provided bred specimens of the rare and local *Salebria obductella* Zell. (Chalmers-Hunt), *Pammene traumiana* Schiff. and *Lobesia euphoriana* Freyer (Wakely) and bred series of *Oidaematophorus bowesi* Whalley (Wakely and Emmet). Wakely and Emmet also showed bred examples of *Grapholita lathyrana* Hübn. from Ditchling, Sussex.

Some of the Surrey exhibits were products of the field meeting held at Chobham on 27th April. These included the local and erratic *Adela cuprella* Thunb. (Wakely, Fairclough and Emmet) and bred specimens of *Buckleria paludum* Zell., *Salebria betulae* Deg. and *Telphusa alburnella* Dup. (Emmet), of *Borkhausenia unitella* Hübn. (Wakely) and of *Coleophora ibipennella* Zell. (Wakely and Emmet). Examples of moths taken on other occasions were Wakely's *Amphisbatis incongruella* Staint. (Oxshott) and Fairclough's *Gypsonoma oppressana* Treits (Smallfield) and *Adela croesella* Scop. (Mickleham).

Among specimens attracted to his mercury vapour light in Camberwell, S.E. London, Mr. Wakely exhibited *Adoxophyes orana* F.R., a species first recorded in this country in 1952.

Mr. Wakely and Col. Emmet both exhibited specimens of *Grapholita gemmifera* Treits. and *Leucoptera lathyrifoliella* Staint. bred from larvae taken by the former at Lucombe in the Isle of Wight.

Dorset specimens were mainly the rewards of a week-end visit to Portland Bill in May by Messrs. Wakely, Uffen, Chalmers-Hunt, Fairclough, Col. Emmet and Capt. J. Ellerton. Most of these gentlemen showed bred specimens of *Mecyna asinalis* Hübn., *Epischnia banksiella* Rich., *Euzophera cinerosella* Zell., *Agdistis*

1



2



3



4



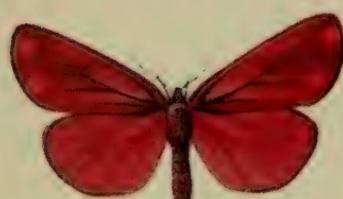
From the original watercolour drawing by A. D. A. Russwurm.

New aberrations of *Callimorpha jacobææ* Linn. 1967.

- | | | | |
|---------------------------------|-----------|----------|-------------------------|
| 1. ab. <i>flavarosea</i> Watson | σ | 3. ditto | φ |
| 2. ditto | φ | 4. ditto | σ (extreme form) |



1



2



3

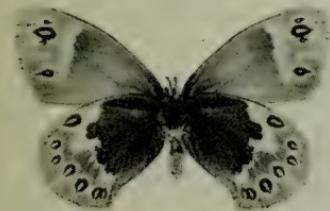
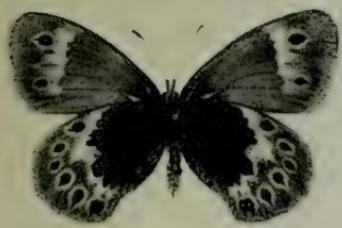


4

From the original watercolour drawing by A. D. A. Russwurm.

New aberrations of *Callimorpha jacobææ* Linn. 1967.

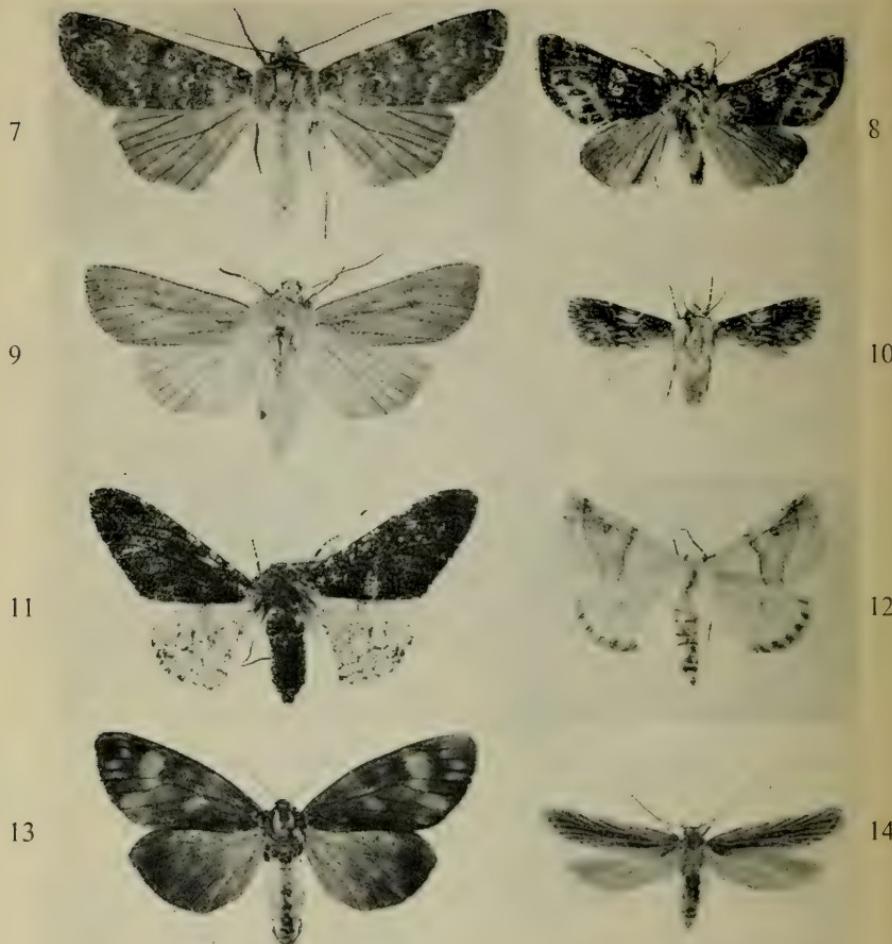
- | | |
|-------------------------------------|-------------------------------------|
| 1. ab. <i>rubrasuffusa</i> Watson ♂ | 3. ab. <i>nigrociliata</i> Watson ♀ |
| 2. ab. <i>nigrociliata</i> Watson ♂ | 4. ab. <i>pallida</i> Watson ♂ |



(Photographs by Mr. D. J. Carter

ANNUAL EXHIBITION, 2nd November 1968

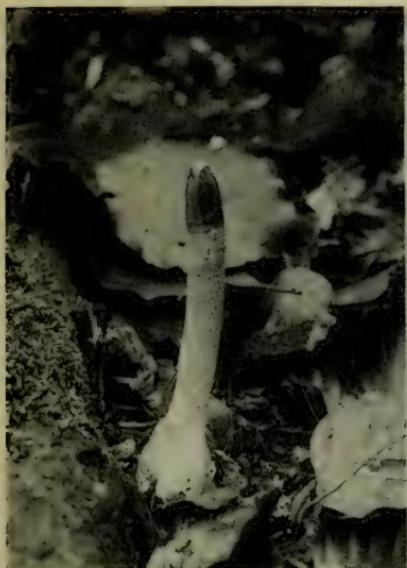
1. *Argynnis charlotta* Haw. aberration, Major-General C. G. Lipscombe;
2. *Pieris napi* L. aberration, S. R. Bowden; 3. & 4. *Coenonympha tullia* Mull., Mr. A. D. A. Russwurm; 5. *Coenonympha tullia* Mull. Mr. H. G. M. Middleton.
6. *Thymelicus sylvestris* Poda, dark aberration.



(Photographs by Mr. D. J. Carter)

ANNUAL EXHIBITION, 2nd November 1968

7. *Rhyacia lucipeta* Schiff., Mr. A. J. Wightman; 8. *Polychrisia moneta* F. ab. *maculata* Lempke, Mr. A. G. M. Batten; 9. *Apamea zollikoferi* Frey, Major-General Sir George Johnson; 10. *Agrotis puta* Hübn., Mr. S. A. Knill-Jones; 11. *Biston betularia* L. aberration, Mr. A. G. M. Batten; 12. *Crocallis elinguaria* L., Mr. H. E. Chipperfield; 13. *Panaxia dominula* L. aberration, Mr. R. Hayward; 14. *Aroga velocella* Dup., Col. A. M. Emmet.



15



16



17



18

(Photographs by Mr. W. H. Spreadbury)

ANNUAL EXHIBITION, 2nd November 1968

15. *Mutinus caninus* Fr.; 16. *Daedalea quercina* Fr.; 17. *Phallus impudicus* (L.);
18. *Geaster triplex* Jungh; Mr. W. H. Spreadbury.

staticis Mill., *Lozopera francillana* F., *Metzneria carlinella* Staint. and *Scrobipalpa ocellatella* Boyd. Mr. Chipperfield showed some of these species as a result of an independent visit. Mr. Chalmers-Hunt included a captured example of *Acroclita subsequana* H.-S. A slightly mysterious exhibit was Col. Emmet's specimen of *Teichobia filicivora* Mayr. which emerged among a batch of its relative *T. verhuellella* Staint. and which had been feeding on *Scolopendrium*; if, as seems possible, the *T. filicivora* had also been feeding on this plant, it is the first record of it doing so.

Cornwall was represented by Fairclough's *Nemotois minimella* Zell. from Bodmin and bred *Austrotortrix postvitana* Walk. from Newquay. Mr. Wakely, besides showing specimens of the latter from Fairclough's stock, also exhibited one bred from an imported Australian apple.

The most interesting specimen from Wales, and one of the highlights of the exhibition, was *Crombruggia laetus* Zell. caught by Mr. Michaelis at Hiraethog, Denbighshire. This is only the second example of this plume to be taken in the British Isles. Mr. Michaelis also showed *Glyphipteryx schoenicolella* Staint. from Anglesey which is new to Wales, and a number of other interesting micros from North Wales. Mr. Chalmers-Hunt exhibited a specimen of *Epinotia signatana* Dougl. bred from a larva taken on *Prunus padus* L. in Brecknockshire. He also showed the large dark form of *Pempelia dilutella* Hübn. from the Isle of Man, which at one time was believed to be a distinct species.

The Scottish exhibits too, were of unusual interest. Mr. Pelham-Clinton showed two specimens of a *Depressaria* from Inverness-shire and Mr. Chalmers-Hunt an *Argyresthia* beaten out of a spruce in Perthshire both of which are as yet unidentified and may provide additions to the British list. The former also displayed specimens of *Bucculatrix capreella* Krogerus (merei Pelham-Clinton) recently discovered in Inverness-shire and Morayshire; a series of *Phyllonorycter coryliella* s.sp. *caledoniella* Staint., showing the very distinct Scottish form of this species; and *Epithectis tetrapunctella* Thunb. (*lathyri* Staint.), a local fenland moth. He and Mr. Michaelis both exhibited single bred examples of *Coleophora arctostaphyli* Meder, the fruits of a joint expedition expressly undertaken to discover the larva of this species. Mr. Chalmers-Hunt, who was putting on show specimens taken in 1966 and 1967 as well as in the current year, displayed *Catoptria furcatellus* Zett. and *Whittlezia borealis* Tengst. from high on Ben Lawers (Perthshire), a bred series of *Acleris maccana* Treits. from the same county showing variation and *Kessleria saxifragae* Staint. from Aberdeenshire. The President exhibited several interesting species from the Shetland Islands.

Ireland provided a series of *Cochylis pallidana* Zell. bred by Mr. Fairclough from Kerry, and a number of species taken by Col. Emmet in West Galway. These included a bred series of *Ancylis inornatana* H.-S., believed to be new to Ireland, and a dozen specimens of *Phalonidia griseana* Haw. This species was recorded as new to Ireland from a single specimen captured in 1962 and had not been taken since, till June of this year, when it turned up in moderate plenty on the same ground. Eight of the specimens, in addition to the first, are now in the British Museum (Nat. Hist.). Also shown were *Hysterosia musculosana* Haw., a form in which the male has dark hindwings, and bred and captured specimens of *Nepticula salicis* Staint. Among species taken in the Burren (Co. Clare) Col. Emmet exhibited *Platyptilia tesseradactyla* Zell., *Epinotia nemorivaga* Tengst. and a bred series of *Coelophora troglodytella* Dup.

The President exhibited several interesting species from the Shetland Islands including *Eana colquhouanana* Barr. and *Epinotia mercurana* Fröl.

Among the Coleoptera Mr. A. E. GARDNER showed four specimens of *Eucinetus meridionalis* Lap. taken at Lymington in the New Forest. This most interesting beetle is a recent addition to the British list and is the only member of the family Eucinetidae ever to be recorded in this country. The larvae feed on fungoid growths under bark, especially Pitch Pine, adult beetles occur on flowers and under bark in the summer, whilst in the winter they seek the shelter of litter. Mr. D. APPLETON exhibited some fine beetles from the New Forest including *Hypocoelus cariniceps* Reit., a species new to Britain. Mr. S. A. WILLIAMS's exhibit consisted of the six species of the genus *Amischa* known to occur in Britain, including the true *A. soror* of Kraatz known previously as *A. analis* Grav. var. *major* Fw. The exhibit also included sketches of the spermathecae and photographs of typical *Amischa* habitats.

Mr. W. H. SPREADBURY showed a collection of fungi and photographs of fungi, a selection of which appear on plate 8.

14th NOVEMBER 1968

The President, Mr. B. GOATER, in the Chair

The following new members were declared elected: Col. C. F. Cowan, Mr. R. C. Smallwood, Mr. N. D. M. Fergusson and Mr. R. B. Kinder.

The death was announced of Mrs. M. B. Watson.

EXHIBITS

Mr. C. F. DEWHURST—(1) Examples of *Pteromalus puparum* (L.) (Hym., Chalcididae) with pupae of *Aglais urticae* (L.) (Lep., Nymphalidae) from which they were bred. (2) An adult male *Bombyx mori* L. (Lep., Bombycidae) with larval head capsule adhering to its head. (3) A male Safari Ant or Sausage Fly, from Kenya.

Mr. S. R. BOWDEN—A series of new recessive forms obtained by breeding European *Pieris napi* (L.) (Lep., Pieridae) with other material.

COMMUNICATIONS

The PRESIDENT reported that a stand for the Society had been set up by Mr. A. E. Gardner at the Exhibition of the School Natural Science Society at Fulham on 9th November, and some Christmas cards and back numbers of the Proceedings had been sold there.

Finding previously published lists of microlepidoptera of Wicken Fen, Cambs., inadequate, Col. A. M. EMMET offered to accept records for the locality for this group of insects.

Mr. S. WAKELY reported that the heronry at High Halstow, Kent, had recently increased greatly.

A cutting from the *Sunday Telegraph* giving a garbled account of some exhibits at the Society's recent Annual Exhibition was read by Mr. T. G. HOWARTH. In this only the exceptionally clear photograph of *Rhyacia lucipeta* Schiff. met with approval. He also added, with reference to Mr. Dewhurst's second exhibit, that some butterflies in the family Nymphalidae in the British Museum (Nat. Hist.) collection had adhering larval head capsules.

Opening a general discussion on the 1968 Annual Exhibition, the President congratulated the organisers on their excellent work. He said that 260 members or

visitors had signed the attendance register, and he estimated the probable total of visitors at 300. Exhibits had been less numerous than before but of a very high standard. It was agreed that the exhibition had been more comfortable than the previous year's, largely because tea was not provided in the Conversazione Room with the exhibits, but chairs were. The later date also suited members. Mr. A. E. GARDNER regretted the absence, this year, of an exhibit by the Zoological Society of London and suggested it be approached with a view to exhibiting next year. He also suggested that the Society might at the next exhibition offer facilities for visitors to join the Society at a stand showing the Society's own activities. Mr. R. F. BRETHERTON suggested exhibits should invariably be clearly marked in future with the exhibitor's name.

28th NOVEMBER 1968

The President, Mr. B. GOATER, in the Chair

The death was announced of Mr. M. Harrison-Gray.

The following new members were declared elected: Mr. S. E. Crutcher, R. W. Waters, Mr. R. Tomlinson, Mr. D. M. Appleton, Mr. J. Platts, Mr. E. G. Philp, Mr. J. Labden, Mr. R. G. Kemp, Mr. V. Shearer, Mr. S. M. Atkins, Mr. P. R. Seymour, Mr. M. A. K. Habershon and Mr. P. A. Seldon.

EXHIBITS

Mr. A. SMITH—A framed drawing of a rabbit done many years ago.

Mr. A. E. GARDNER—(1) The following staphylinid Coleoptera: *Quedius brevicornis* Thoms., a female from a hornet's nest inside a beech trunk, Denny Wood, New Forest, Hants, 23.xi.68; *Rugilis fragilis* (Grav.) (*angustatus* (Geoff.)) from reed litter, Lymington Marsh, S. Hants., 23.xi.68. (2) Plastic plant propagating pots which are suitable for rearing larvae and obtainable cheaply in local shops.

COMMUNICATIONS

Dr. C. G. M. DE WORMS reported that Mr. A. M. Morley, as a school-boy, had found a live *Hippotion celerio* L. (Lep., Sphingidae) sitting on a post at Folkestone, Kent; that he had heard of *Danaus plexippus* L. (L.) (Danaidae) being found on the Sussex-Kent border as late as 10th November; that *Ptilophora plumigera* Esp. (Lep., Notodontidae) had been taken in fair numbers in the Chilterns as late as 20th November; and that the Nutcracker had been seen in the Sussex-Kent area.

The PRESIDENT read a report from the *Sunday Times*, an illustrated abstract of an article by Dr. Baenziger, about the blood-sucking habit of a Malayan moth, *Calyptro eustrigata* Hampson (Noctuidae). In a wild state it had fed on mammals in Malaya but in captivity had been induced to suck human blood and was photographed doing so.

Mr. A. SMITH gave a talk on 'The Case for Scientific Illustration'.

12th DECEMBER 1968

The President, Mr. B. GOATER, in the Chair

The following new member was declared elected: Mr. R. E. G. Fisher.

EXHIBITS

Mr. R. F. BRETHERTON—A number of *Amphipyra pyramidea* L., and *A. berbera* Rungs (Lep., Noctuidae) taken at sugar and at light in W. Surrey, 11.viii to 14.ix.68. These he found difficult in all cases to assign to one species or the other following the published superficial criteria. He had kept females alive but obtained no ova.

Mr. A. E. STUBBS—Diptera usually considered upland species which he had taken on low-lying ground in the vicinity of the river Wey, near Godalming, Surrey: *Rhagio notata* (Meig.) (Rhagonidae), *Hexatomia fuscipennis* (Curt.) and *Tipula montium* Egger (Tipulidae).

Mr. A. E. GARDNER—Exotic Coleoptera (Cerambycidae): *Batocera rufomaculata* Deg. from Gan, Maldives Islands, April 1960 (W. H. Reay); *Batocera wallacei* Thoms., Samari, Awaiana, New Guinea (T. Tamanabae).

COMMUNICATIONS

A discussion took place on *Amphipyra pyramidea* L. and *A. berbera* Rungs. Dr. S. L. SUTTON gave an illustrated talk on 'The Study of Woodlice'.

9th JANUARY 1969

The President, Mr. B. GOATER, in the Chair

The death was announced of Mr. H. L. Dolton.

EXHIBITS

The PRESIDENT—Examples of *Amphipyra pyramidea* L. and *A. berbera* Rungs (Lep., Noctuidae) showing, on the underside, more reliable coloration and pattern characters distinguishing the two species than those given by Mr. D. S. Fletcher (1968, *Ent. Gaz.*, 19:91–106) which definitively separated the two species. The most reliable of these was the presence in *A. pyramidea*, near the costa of the hindwing on the underside, of fine fuscous speckles never found in *A. berbera*. The exhibited series had initially been distinguished by the genitalia.

Mr. C. F. DEWHURST—(1) Living larvae of *Rhodometra sacraria* L. (Lep., Geometridae), part of a batch from ova laid by a female taken at light at Tavistock, S. Devon, 5.xi.68. (2) Four female *Pteromalus luzonensis* Graham (Hym., Chalcididae) from the pupa of *Papilio protenor* Cramer (Lep., Papilionidae) from Shillong, Assam. (3) A single example of a *Xanthopimpla* sp. (Hym., Ichneumonidae) from a pupa of *Attacus atlas* L. (Saturniidae).

Mr. D. O'KEEFE—A series of *Polia nitens* Haw. (Lep., Noctuidae) bred ab ovis from a female taken at Eynsford, Kent, 28.vi.68. The larvae were reared until the third instar on dock and then on sliced carrot at a temperature of 70°F. throughout. The moths emerged during November 1968.

COMMUNICATIONS

The PRESIDENT reported that the Acting Honorary Editor, Mr. E. P. Wiltshire, having accepted an appointment in France, would with regret be forced to resign his function shortly.

Mr. M. P. CLIFTON reported that in Kenya after six to eight months of use mercury vapour lamps with pearl-coated bulbs had proved less attractive to moths.

Mr. R. F. BRETHERTON said that in Britain he had run pearl-coated mercury

vapour lights for two or three years without deterioration, though they were possibly a different brand.

The meeting closed with an exhibition of slides by Messrs. C. O. HAMMOND, R. F. BRETHERTON, M. W. F. TWEEDIE, B. R. BAKER and E. S. BRADFORD.

23rd JANUARY 1969

97th ANNUAL GENERAL MEETING
(with which was combined the Ordinary Meeting)

The President, Mr. B. GOATER, in the Chair

The following new member was declared elected: Mr. J. Pickles.

EXHIBITS

Mr. P. N. CROW—The following Diptera: *Eriozona syrphoides* Fall., a new British syrphid, taken at Festiniog, N. Wales; and five species of Asilidae: *Machimus atricapillus* Fall., *Dioctria atricapilla* Meig., *D. rufipes* Deg., *Leptarthrus brevirostris* Meig. and *D. linearis* F.

Mr. M. W. F. TWEEDIE—A photograph showing pupae of *Leucania straminea* Treits. and *L. impura* Hübn. obtained from larvae collected together on *Phragmites communis* Trin. on Romney Marsh, Kent. The pupa of the former species is slender, but that of the latter is short and stout. The two species are easier to distinguish as pupae than in their other stages.

Mr. E. W. CLASSEY—Lists of meetings for the year 1904 and other old programmes of the South Entomological and Natural History Society.

The Treasurer, Mr. A. S. WHEELER, reported on the Society's finances and moved the adoption of his report and accounts, which were seconded and carried.

Dr. B. J. MACNULTY, Secretary, read the Council's Report for 1968 and moved its adoption, this was also seconded and carried.

A report by the Librarian, Mr. S. A. WILLIAMS, was carried, as was the report by Mr. A. E. GARDNER, the Society's Curator.

The President declared the following officers and ordinary members of the council elected for the next year: *President*, Capt. J. ELLERTON, D.S.C., R.N.; *Vice-Presidents*, B. GOATER, B.Sc. and B. J. MACNULTY, PH.D., B.Sc., F.R.I.C., F.L.S., F.R.E.S.; *Treasurer*, R. F. BRETHERTON, C.B., M.A.; *Secretary*, D. A. ODD; *Editor*, E. P. WILTSHIRE, C.B.E., B.A., M.I.L., F.R.E.S.; *Curator*, A. E. GARDNER, F.R.E.S.; *Librarian*, S. A. WILLIAMS; *Lanternist*, M. SHAFFER; *Ordinary Members of Council*, Miss K. BROOKES, Miss S. HANCOCK, Col. A. M. EMMET, M.B.E., T.D., M.A., and Messrs E. W. CLASSEY, F.R.E.S., C. O. HAMMOND, F.R.E.S., C. MACKECHNIE JARVIS, F.L.S., M. G. MORRIS, M.A., PH.D., F.R.E.S., G. PRIOR, D. O'KEEFFE, M.I.O.M., and A. E. STUBBS, B.Sc.

Under bye-law 25 (b) Mr. T. G. HOWARTH said that at some meetings important lectures were delayed by long and rather trivial proceedings such as field meeting reports, with the result that some members were obliged to leave in the middle of the lecture. He suggested bye-law 24(4) might be altered. The President said the Council would look into this matter.

Mr. GOATER then read his Presidential Address on the variation of *Agrotis exclamans* L. (Lep., Noctuidae). (see p. 53).

A vote of thanks to Mr. Goater for his services during the past year was pro-

posed by the incoming President, Capt. J. ELLERTON, coupled with a request to publish his Address.

A vote of thanks to the officers and council was seconded and carried.

COUNCIL'S REPORT FOR 1968

The Society has now completed the first year under its new name, which appears to have been generally welcomed. Already we have benefited from the change, since the Society has received invitations to attend conferences and to take part in National movements where previously we had been overlooked. A sound beginning has been made and we can look forward to a future of increasing influence and success.

The membership at 31st December was 6 Honorary, 3 Special Life, 18 Life, 244 Ordinary, 261 Country and 49 Junior members, also 1 Corporate member; a total of 582 compared with 572 a year ago. During the year 18 members resigned, 7 were struck off for non-payment of dues and 8 died; but we recruited 43 new members, giving us a slight increase of 10 members.

However the year has brought its difficulties. Just as we are moving forward into a new era so we are witnessing the end of another.

In February your secretary, Dr. B. J. MacNulty, who has now completed eight years of service, intimated to Council that he would like to resign his office at the end of the year in order to devote more time to entomology; he did so at that date in order to give Council plenty of time to find a successor. We are pleased to report that Mr. D. A. Odd has agreed to take on this task, arduous at times, but so necessary for the smooth running of the Society. We wish him every success in the office.

In March, Mr. F. D. Buck, our Editor, resigned after 13 years. We are happy to report he has accepted Honorary membership of the Society bestowed in recognition of his valued and expert service. We are fortunate in finding Mr. E. P. Wiltshire to take up the post temporarily. In view of the heavy rise in printing costs in recent years the Council decided to ask for competitive quotations and adopted the lowest. Unfortunately the change in printer has led to considerable delay in the issue of the *Proceedings*, but it is hoped to catch up by the end of 1969.

In this connection your Council has pleasure in recording a most generous gift of £1,000 by Mrs. Margaret Mere for the publication of the remaining plates of British lepidopterous larvae not figured by Buckler, as a memorial to her late husband Robin Mere. The majority of these plates should appear early in the new year.

Finally our Treasurer, Mr. A. S. Wheeler, was forced by domestic circumstances to tender his resignation as from the end of the year. Although he had only held the office for two years, the Society has already felt the benefit of his knowledge of accountancy and we regret that he has had to resign. We offer him our sincere thanks for his efforts. We are pleased that Mr. R. F. Bretherton has agreed to serve the Society in this capacity. We welcome him to the post and hope that he will enjoy his period of office.

During the year the Society held twenty indoor meetings. The programme, which included exhibits, discussions and lectures, was the first arranged by the new Indoor Meetings Secretary, Mr. D. J. Carter, and proved most successful. We thank him and congratulate him on an excellent beginning.

The Field Meeting Secretary, Mr. R. W. J. Uffen, arranged a varied and attractive programme of meetings which were greatly appreciated by those who attended. We thank Mr. & Mrs. Loarridge, the owners of Cosford Mill, who invited the members to tea on the occasion of the meeting there, and Mr. & Mrs. Bretherton for providing tea at their home in Bramley after the field meeting at Hackhurst Down, Surrey. Mr. Uffen informed the Council at the beginning of the year that having arranged the field meetings for the past ten years he felt it was time to lay down his office. We are fortunate in persuading Mr. G. Prior to take over the post. We thank Mr. Uffen for his long service and for the many enjoyable days he has arranged for us.

Owing to unforeseen circumstances it was necessary to hold the Dinner and Exhibition a week later than usual. The Annual Dinner was held on 1st November at Flemings Hotel and attracted the record number of 115 members and guests. Owing to the numbers a new seating plan with groups at individual tables had to be devised and this proved very popular. Members seemed to think that this was the most successful dinner we had held so far.

The Annual Exhibition was held on Saturday, 2nd November, when 260 members and friends attended. There were fewer exhibits than for some years, but the general quality was very high and included a number of rare migrants, some of which appeared as a result of the freak storms early in July. The excellent layout and presentation of some exhibits was very noticeable. In view of our rapidly approaching Centenary Exhibition, members are reminded that clear and attractive presentation with adequate notes is essential. More experienced members of the Society will no doubt be only too pleased to help others who find difficulty in this matter. Once again we were fortunate in being allowed to use the Conversazione Room at the British Museum (Nat. Hist.) for the occasion. Our thanks are due to the Director of the museum for the use of this room and to his staff for their help in making the exhibition a success. We are grateful to Mr. T. G. Howarth for making the arrangements and to Mr. D. J. Carter for photographing outstanding exhibits; also to Mr. D. Stimpson and his team for their efficient running of the Exhibition.

The Society was represented at the Schools Natural Science Society's Exhibition held at Chelsea on 9th November. An attractive display of insects was on view arranged by the curator, Mr. A. E. Gardner, and an instructive exhibit depicted the conservation of Odonata on Thursley Common, Surrey. The photographs were kindly supplied by Mr. A. E. Stubbs. The Society's publications and Christmas cards were available and we are indebted to Miss K. Brookes for valuable assistance with the sale of cards. Our thanks are also due to Mr. E. Bradford who presented us with an attractive sign board containing the Society's name.

We thank Mr. B. Hargreaves for his drawing which was used for this year's Christmas Card depicting a Swallow-tail moth on ivy; and we are most grateful to Miss Kathleen Brookes, who organised and arranged the sales, as we are to all those who helped in this respect.

The Council acknowledge the bequest of £25 from the late Mr. J. A. Baker.

The serving of light refreshments before ordinary meetings has continued to be most popular, and Mrs. Howarth who has organised this service has been able to donate a further ten guineas from the profits to the Library Fund. We thank Mrs. Howarth for her efforts which have produced this valuable result whilst simultaneously adding to the comfort of members. Mrs. Lewis of the Alpine Club has again helped us in many ways.

The time seems ripe to remind members that in three years' time the Society will be 100 years old. The Centenary Committee is now actively at work and would be pleased to receive ideas as to how the event should be celebrated. They are particularly concerned that some of the functions should be so arranged that the Country Members can take a major part in them. Finance will be an important aspect of any celebration and it is hoped members will give generous support. Early in the New Year a circular will be sent to all members outlining some of the features that are being considered.

We were also pleased to receive from Mr. A. M. Morley the Centenary publication of the Folkestone Natural History Society, entitled *Some Aspects of the Natural History of Folkestone*.

Two further publications of the Royal Entomological Society have been purchased: *Handbook for the Identification of British Insects, Hymenoptera, Chalcidoidea*, by R. R. Askew and also *Diptera, Cyclorrhapha Calyptrata Muscidae*, by E. C. M. d'Assis Fonseca. We have also received the first two parts of *Microlepidoptera Palearctica*, part 1, *Crambinae*, by S. Bleszynski and part 2, *Ethmiidae*, by K. Sattler. This is an excellent publication with fine coloured plates and will no doubt become the standard work on the subject for many years to come.

Thanks are due to both Assistant Librarians for their help during the year; Mr. R. M. Williams for taking care of the binding and Miss Christine Wagner for storing back numbers of our *Proceedings*.

THE CURATOR'S REPORT FOR 1968

During the year the Society received bequests from Mr. J. A. Baker and Mr. R. D. Cox. Our thanks are due to Mr. T. G. Howarth for recommending the Society for the Cox bequest.

Both consisted of British macrolepidoptera plus a few foreign species cabinets, books and apparatus. Specimens required for the Society's collection have been selected and the remainder transferred to the duplicate cabinets.

A number of the store boxes containing the A. M. Massee collection of British Coleoptera have been returned by the British Museum (Nat. Hist.), very few specimens being retained. Work has started on transferring the specimens to the prepared 40 drawer cabinet. Work has continued on the rearrangement of the Hemiptera-Homoptera and collection of lepidopterous larvae.

Our collection of Hymenoptera is being made available to Mr. J. C. Felton who is compiling a list of the Kent species. Mr. Felton has also kindly offered to identify our unnamed material. Mr. P. J. Chandler continues to work on our Diptera and Mr. S. A. Williams has carried out invaluable work on some of the obscure genera of the Staphylinidae in the Joy and Henderson Coleoptera collections.

It is pleasing to report that the collections and microscope are in almost constant use during meeting nights and that many members have continued to use the duplicate material available.

The thanks of the Society are due to the following members for notable accessions: Sir Eric Ansorge (Lepidoptera), Mr. C. F. Dewhurst (Hemiptera-Heteroptera), Mr. A. E. Gardner (Lepidoptera, Coleoptera and Saltatoria), Mr. B. Goater (Lepidoptera), Mr. A. E. Stubbs (Lepidoptera) and Mr. S. A. Williams (Coleoptera).

During the year one microscope has been placed on loan and one has been returned.

Mr. L. Christie, the Assistant Curator, has continued to render valuable help with the task of repapering cabinet drawers.

THE LIBRARIAN'S REPORT FOR 1968

This was another satisfactory year for the library. Twelve new books have been donated and four purchased. A record number of books have been borrowed, including a complete set of our *Proceedings* by Maidstone Museum to help compile a new Kent list of Coleoptera.

During the year, Messrs. Fox, our bookbinders, increased their prices to such an extent that the Council decided to change to a less expensive firm if one could be found without loss of workmanship. We have found what we hope is such a firm in Wimbledon and we plan to give them some work on a trial basis next year. In the meantime we have received all our outstanding work (some 12 volumes) from Messrs. Fox. The Council has also decided to discontinue binding the British journals in half calf in favour of buckram, which is cheaper and more suitable for the Society's needs.

We are again short of covered bookshelves, and Council asked Mr. Gardner if he would install another dustproof blind, which he has agreed to do during the winter. When this is fitted we plan to move our British journals from the glass-fronted bookcases, thus making room for new books.

Several interesting books were bequeathed by Mr. J. A. Baker.

A number of useful spring-backed files were given by Mr. S. N. A. Jacobs for use with separates.

A catalogue of the library was published in the *Proceedings* for 1959, since when many new books and separates have been presented or purchased, including the following during the past year: Brewer, Jo, *Wings in the Meadow*, presented by the author; Common, I. F. B., *Australian Butterflies*, presented by Mr. J. A. C. Greenwood; Darlington, A., *Plant Galls*, presented by Mr. S. N. A. Jacobs and Mr. G. Prior; Ford, E. B., *Ecological Genetics*, presented by Mr. F. T. Vallins; Høegh-Guldberg, Ove, *Evolutionary Trends in the genus Aricia (Lep.)*, presented by Mr. S. N. A. Jacobs; Jenkins, W. R., *Plant Nematology*, presented by Mr. S. N. A. Jacobs; Kalyanan, N. P., *Common Insects of India*, presented by Mr. S. N. A. Jacobs; Mayr, Ernst, *Animal Species and Evolution*, presented by Mr. F. T. Vallins; Meyer, G. R., *Practical Work in Biology*, presented by Mr. S. N. A. Jacobs; Ziswiler, V., *Extinct and Vanishing Animals*, presented by Mr. S. N. A. Jacobs.

We continue to receive the usual journals.

TREASURER'S REPORT 1968

At the beginning of the year we were very grateful to Mrs. M. Mere for the donation of £1,000 for publication of the remaining illustrated papers by Mr. G. M. Haggatt.

Owing to an unforeseen delay by our new printers, only a small part of the donation has been spent and our temporary wealth is earning about 5 per cent interest on deposit in our Bank Savings Account where the balance has grown to £1,492.14.1.

The Balance Sheet shows an excess of income over expenditure of £105.6.4 and the General Fund is thereby increased to £2,499.18.3. The excess is considerably less than last year when I increased the valuation of stocks of Christmas

Cards and we had a large stock of unsold ties. It is the opinion of your Auditors, with whom I agree, that these valuations should be removed from the Accounts as soon as possible and Council decided that this should be spread over a period of five years. In the circumstances, the amounts shown are less than would otherwise have been the case. This policy should continue for another four years after which the Christmas Cards and Ties Accounts will be on the same basis as the Publications Account where no provision is made.

The Special Funds and Reserve Fund remain much the same as at the beginning of the year. The Housing Fund received a donation of £7.17.6 and I have transferred £40 from the General Income & Expenditure Account in lieu of interest. The balance is now £838.7.3. The Centenary Fund has increased by only 10/- to a total of £14.13.0.

The Library Fund has been reduced to £105.16.3. During the year a donation of £10.10.0. was received from Mrs. Howarth being further profit for the sale of tea on meeting nights. This, added to Entrance Fees and a Life Subscription, fell short of the cost of purchases and subscriptions to journals by £8.10.4.

The Reserve Fund received no donations this year but I have transferred £20 from General Income & Expenditure Account and the balance now reads £398.18.7.

All investments shown last year remain, to which has been added £455 General Electric Co. Ltd., 7½ per cent Convertible Unsecured Loan Stock 1987/92. There has also been an increase in our holding of Premier Investment Co. Ltd., with the purchase of 145 shares to make a total of 445.

The Publications Account consists, to a considerable extent, of estimates and provisions. £1,200 has been set aside under Sundry Creditors and £496.18.9 has been transferred from General Income & Expenditure Account. This transfer is less than in 1967 due to the estimated lower costs.

Sales of Christmas Cards exceeded expenditure on the new production, including postage, by £10.18.5, but since no provision is being made for remaining stocks stocks of this year's card and as valuation of stocks of previous issues has been written down by one fifth, an amount of £59.1.7 has been transferred from General Income & Expenditure Account.

The Ties Account records sales totalling £101.0.6, including contributions to postage and despatch. Unfortunately 16 ties were lost in a stolen car, against which the Society could not economically insure. After writing down the remaining stock value, £5.6.10 has been credited to General Income & Expenditure Account.

Total subscriptions are about the same as last year, thanks to the efforts of our Assistant Treasurer, Mr. F. T. Vallins, who does not relent in reminding those of us who fail to pay promptly.

Interest on investments and the bank savings account has risen, due to our increased capital, to a total of £239.9.7.

I am pleased to report the receipt of £25, bequeathed to the Society by the late Mr. J. A. Baker.

I am also glad to say that after paying the Annual Dinner Accounts and incidental expenses at the exhibition we had a surplus of £5.1.6. This will help to offset the losses suffered previously.

Total income is almost the same as in 1967 although its origin and distribution have changed considerably.

Of the expenditure items to which I have not already referred, the principal change has been that our Secretary found it necessary to engage, with Council's sanction, a firm to duplicate our circulars. This method has been employed since

British Entomological and Natural History Society Statement of Accounts

BALANCE SHEET—31st DECEMBER, 1968

British Entomological and Natural History Society Statement of Accounts

PUBLICATIONS ACCOUNT

1967 £ s. d.	1968 £ s. d.	1967 £ s. d.	1968 £ s. d.
To Printing—		By Sales—	
522 6 0 Proceedings	680 0 0	33 10 3 Proceedings, etc.	.. ..
7 18 11 Exhibition Report 1966	— — —	18 7 0 Exhibition Reports	38 14 3
14 17 0 List of Members, Revised Edition	— — —	20 0 0 Donations	1 18 0
85 6 9 Blocks	823 9 8	50 0 0 Parliamentary Grant-in-Aid	1000 0 0
20 5 0 Plates— <i>Callimorpha jacobeae</i> L.	34 1 4	558 7 7 Income & Expenditure Account	— — —
29 11 2 Postages	— — —	£680 4 10	496 18 9
680 4 10	£1537 11 0		£1537 11 0

CHRISTMAS CARDS ACCOUNT

100 0 0 To Stock at 1st January	150 0 0	73 5 4 By Sales	76 11 6
40 10 11 Printing & Envelopes	58 10 0	150 0 0 Stock at 31st December	80 0 0
3 3 2 Blocks	4 1 7	— — — Income & Expenditure Account—Charge	59 1 7
3 14 0 Postages	3 1 6	The Stock of this year's card has been excluded from the valuation at 31st Dec. 1969	
75 16 3 Income & Expenditure Account—Profit	— — —		
£223 4 4	£215 13 1	£223 4 4	£215 13 1

TIES ACCOUNT

290 6 5 To Stock at 1st January	170 0 0	159 19 0 By Sales	101 0 6
Manufacture	— — —	Loss of 16 Ties	15 8 8
Postages	1 2 4	Stock at 31st December	60 0 0
Income & Expenditure Account—Profit	5 6 10		
£329 19 0	£176 9 2	£329 19 0	£176 9 2

British Entomological and Natural History Society Statement of Accounts

GENERAL INCOME AND EXPENDITURE ACCOUNT

		1967		1968		1967		1968		INCOME	
		EXPENDITURE				EXPENDITURE					
		£	s.	d.		£	s.	d.		£	s.
286	0	0	Rent	..	..	286	0	0	1044	10	10
14	4	10	Insurance	..	..	12	10	6	147	17	3
23	9	1	Secretarial Expenses	..	..	150	19	2	10	5	1
5	3	9	Editorial Expenses	..	..	5	9	9	75	16	3
13	1	5	Treasurer's Expenses	..	..	13	2	8	39	12	7
47	6	5	Stationery	..	..	65	4	11	—	—	..
10	10	0	Subscriptions to Societies	..	..	20	15	0	Bequest	..	..
10	0	0	Lectures	..	..	10	9	9	Annual Dinner & Exhibition—Profit	..	..
11	0	7	Annual Dinner & Exhibition	..	..	..	..	..	—	—	..
—	—	—	Bank Charges	..	..	6	14	6	—	—	..
45	0	0	Cabinets	..	..	..	..	..	—	—	..
12	2	1	Miscellaneous	..	..	25	2	10	—	—	..
558	7	7	Publications	..	..	496	18	9	—	—	..
20	0	0	Housing Fund	..	..	40	0	0	—	—	..
15	0	0	Reserve Fund	..	..	59	1	7	—	—	..
—	—	—	Christmas Cards	..	..	105	6	4	Excess of Income over Expenditure	..	..
246	16	3	Excess of Income over Expenditure	..	..	£1317	15	9	£1318	2	0
		<hr/>		<hr/>		<hr/>		<hr/>		<hr/>	

We certify that the Balance Sheet and General Income & Expenditure Account are in accordance with the books and vouchers presented to us.

J. L. MESSENGER

A. G. STOUGHTON-HARRIS F.C.A., Chartered Accountant.

A. S. WHEELER, Hon. Treasurer

June 1967 and I regret having omitted to make provision for costs in the 1967 accounts. The amount charged was £41.6.6 and we expect to be charged somewhat more in respect of 1968. Combined with postages and provisions for duplicating, the total is £150.9.2 compared to £23.9.1 shown in 1967.

Other additional expenditure has been on stationery which had to be changed to the new name of the Society and we have also suffered bank charges in connection with the registration of Mr. J. L. Messenger as one of our Trustees.

I am indebted to Mr. Vallins for his co-operation in the smooth running of the division of responsibilities between us. I am also grateful to Mr. A. G. Stoughton-Harris for his professional advice and assistance in various matters that arose in 1968, in addition to his continuance as Honorary Auditor in company with Mr. Messenger. Our thanks are due to them all.

Finally, I wish Mr. R. F. Bretherton every success in this office.

OBITUARY

H. G. DENVIL (1901-1968)

Horace Gaskell Denvil died on 17th September 1968, suddenly, as a result of a stroke after a family holiday in South Wales and Worcestershire. The holiday had been his first since a long illness and operation, when he was able, briefly, to resume hunting out Coleoptera after an interval of 18 months.

Mr. Denvil was an all round naturalist. His interests, while centred upon the Coleoptera during the last 35 years or so, included an earlier specialisation in Lepidoptera. He was a keen ornithologist and a member of the Royal Society for the Protection of Birds. He was a Fellow of the Zoological Society of London and he kept a variety of reptiles including snakes, terrapins and an alligator—the last until it outgrew the accommodation available. He was a Fellow of the Royal Entomological Society and of the Royal Horticultural Society and a member of the London Natural History Society.

He joined our Society in 1930 and he served on its Council several times over a long period as well as being Minuting Secretary from January 1936 until he was called up for military service in 1942.

In 1917 Mr. Denvil entered the National Provincial Bank Ltd. and spent most of the next 40 years in the City of London. In later years he was attached to their Warwick Gardens Branch for the purpose of representing the bank at Earls Court and Olympia exhibitions. Late and irregular hours at these events often clashed with the Society's activities, and for this reason we did not see as much of him as he, and we, would have liked. Particularly inconvenient in this respect had been the Motor Show, which, almost invariably, ended on the day of our Annual Exhibition.

When he retired in 1966, on the night preceding our exhibition incidentally, Mr. Denvil had hoped to pursue his activities more ardently; but, unfortunately, after only a brief spell of retirement he suffered the first of a series of strokes due to a circulatory disorder.

Mr. Denvil will be remembered by his contemporaries as a well-informed member who was always ready to help or encourage those about him, as well as being full of reminiscences dating back to his early years with the Society.

He was married in 1928 and we extend our sincere sympathy to his widow and their twins, son and daughter, after what has been a particularly distressing two years.

A. S. WHEELER

PRESIDENTIAL ADDRESS

By B. GOATER, B.SC., M.I.BIOL

A year ago, a decision was made in this room to change the name of our Society. It is not my purpose tonight to reconsider the reasons for this, but it is my duty to say what I can about the effects that the change of name has had upon the Society during the last twelve months. Firstly, I have not been able to detect any undermining of the precious traditions of our 'South London' Society. Attendances at our Indoor Meetings have been excellent, and at least average at the Field Meetings. Many Members who spoke to me after the Annual Dinner expressed their warm approval of the arrangements at Fleming's Hotel, and I was proud to preside at such a manifestly happy and lively gathering. On the following day, the Annual Exhibition was again well attended, and the exhibits were of very high quality, a tribute to the care and skill with which so many of you set out to entertain and instruct your friends. Reference to the social side of our activities would be woefully incomplete if I were to say nothing about the tea and refreshments, so conducive to genial and erudite conversation, which Mr. and Mrs. Howarth provide for our comfort before each meeting here, and I would like to thank them again now most heartily on behalf of you all.

My second point is to draw your attention to the healthy state of the Society's Membership, and to comment especially on the number of young naturalists who are joining and making valuable contribution to our activities. They are our life blood, and so long as they are coming, I feel confident that the future of the Society is in safe hands.

Thirdly, I wish to say something about the administration of the Society's affairs, which becomes increasingly complex as the Society grows, and to remind you that the Officers who so ably, energetically and lovingly nurture and prosper our activities are all amateurs who give unstintingly of their spare time. It has been my privilege to see a lot of this work (but by no means all) at close range during the past year, and I have expressed before my fear that all this work on the shoulders of our senior Officers could prove detrimental to their own full enjoyment of their hobby. Of course they would never admit it, but the fact remains that there is a tremendous amount to do, and I feel sure they would appreciate offers from other members who have a little time to undertake a wide range of small tasks which would assist in the smooth running of the Society's affairs. We cannot expect our Officers to slog on indefinitely, yet when the time comes for them to relinquish their posts we are reluctant to spare them. This year sees a number of team changes in key positions: our Hon. Treasurer, Mr. Wheeler, has found the pressure of domestic affairs so great that he has asked to retire after two years' valuable service. We wish he could have remained longer, but may consider ourselves fortunate that our retiring Vice-President, Mr. Bretherton, now feels he can take over this demanding office. Dr. MacNulty has been the Society's Hon. Secretary for eight years; he has done much to steer the Society into its present strong position, and his broad shoulders have accepted responsibilities which would have daunted lesser men. I owe him a particular debt of gratitude during my year as President for his guidance and wise counsel, and I am delighted you have seen fit to recognise his service and entomological stature by electing him Vice-President. Mr Odd has agreed to take over as Hon. Secretary, and we can again count ourselves very fortunate.

Mr. Buck has served the Society in a great many ways since he first joined, and had the exacting task of editing the Society's Proceedings for thirteen years.

Not only is he a printer by profession and a first-class amateur coleopterist, but a man of tremendous drive and painstaking accuracy, in short, the ideal Editor of an entomological journal, and it was with very real regret that your Council received his resignation last March. We are pleased to elect him an Honorary Member of the Society, and were delighted when Mr. Wiltshire offered to become Hon. Editor in Mr. Buck's place. Alas, life's pattern unfolds inexorably, and now Mr. Wiltshire is off to a job in France, which precludes him from continuing in office, almost before he has begun to savour the fruits of his considerable labours. He will continue in office until March, but we must have found his successor by then.

Many other people have earned the gratitude of the Society by helping in a variety of ways: Mr. Gardner our indefatigable Hon. Curator, Mr. Williams our Hon. Librarian, and our Assistant Secretaries Messrs. Carter and Uffen who have prepared such interesting programmes of Indoor and Field Meetings. Mr. Carter is right into his stride now, but Mr. Uffen is another Officer who feels, after 10 years at the task, that he should give way to someone else, so my thanks for all he has done are especially warm, as is my welcome to Mr. Prior who takes over from him. Mr. Prior has already prepared a most exciting programme for 1969, to which one hopes the weather will show more benevolence than it did last year. Finally, I wish to thank Miss Brookes and her team who look after the preparation and sales of the Society's Christmas Cards, and all those other assistant officers and committee members who help to keep us on an even keel.

My fourth point is that already there is evidence that a change in name is helping our recognition as a national society, which can do us nothing but good. Your Council has before it plans, some already quite detailed, others barely sketched, for the future development of the Society. Can we do more for our Members, especially the Country Members? Should we arrange more ambitious Field Meetings? Can we develop a closer liaison with Nature Conservancy and the County Trusts? Can we improve further the quality and punctuality of our journal? Can we envisage ever having a permanent home of our own? How can we raise more money to bring our ideas to fruition? These and many other questions are constantly before your Council, apart from routine matters, and often it seems how little we have achieved, and how much remains to be accomplished. This is our challenge and we must try to respond. This year we did receive a gift which enabled us to take one big step. I refer to the most generous gift of £1000 by Mrs. Margaret Mere which is enabling us to bring up to date the series of illustrations of lepidopterous larvae by Mr. Haggett. Wonderful as this gift is, grateful as we are, and proud that the work will ever be associated with the name of Robin Mere, would that he were still with us.

Now it is my sombre duty to refer to Members whom we have lost by death.

Mr. J. A. Baker joined the Society in 1953; he lived in Co. Durham, so we did not see him at our meetings as often as we would have liked. He was interested in Lepidoptera and Trichoptera.

Dr. W. V. D. Bolt was another keen lepidopterist who joined in 1961. His home was in Kent.

Mr. H. G. Denvil joined in 1930 and was well known at meetings until illness overtook him. He had been the Society's Lanternist and served on the Council. In his later years he became particularly interested in Coleoptera.

Mr. H. L. Dolton died at the age of 82. He was a keen microlepidopterist who presented his collection to Reading Museum, adding to it further species over

20 years. He published a list of microlepidoptera of the Reading district in the *Reading Naturalist* No. 14 in 1962.

Mr. M. Harrison Gray joined in 1951. He was one of the world's leading bridge players and was Bridge Correspondent for the *Evening Standard*. At the same time, other interests engaged him, including the study of Lepidoptera and particularly the breeding of exotic Saturniidae.

Mr. T. W. Tailby joined in 1962 and was an entomologist and botanist who lived in Leicester.

Mrs. K. M. B. Tyler joined in 1965 and was interested in general natural history, especially of the Selborne area which was her home.

Mrs. M. B. Watson also joined in 1965. She was associated with her husband's wonderful experimental breeding of *Callimorpha jacobaeae* L., and had a rare flair for picking out aberrations of butterflies in the field.

We have already paid our respects to these ladies and gentlemen, and I will not ask you to stand again.

VARIATION IN AGROTIS EXCLAMATIONIS LINNAEUS

In the entomological part of my Address I propose to say something about the range of variation in the very common Palaearctic noctuid, *Agrotis exclamacionis* L., which has excited my interest for a number of years.

Before I proceed, it is necessary to clear up a point of nomenclature regarding the use of the generic name *Agrotis* which was first used by Hübner, for *segetum* Schiff., in his *Tentamen* (1806). This work was rejected in 1926 by the International Commission for Zoological Nomenclature. The next usage of *Agrotis*, by Ochsenheimer in 1816 for the same species, was accepted at that time. A problem arose in 1935 when an incomplete pamphlet by Hübner entitled the *Erste Zuträge zur Sammlung exotischer Schmetterlinge* was unearthed which contained a species named *Agrotis grata*, in a different subfamily from those included in the genus as understood by Ochsenheimer. The *Erste Zuträge* was dated 1808, hence *Agrotis* Ochs. (1816) became preoccupied and, the next available name for *segetum* Schiff. and its congeners would be *Scotia* Hübner (1821). This name has indeed been used by Boursin (1957). Application was made by Nye (1964) for the rejection of the *Erste Zuträge* for nomenclatural purposes on the grounds that it was not a published work, and this was agreed by the International Commission on Zoological Nomenclature in *Opinion 789* (1966). Thus a very difficult situation has been avoided, and *Agrotis* Ochs. (1816) with type species *segetum* Schiff. (1775) remains the valid name. I do not propose to discuss the synonyms of *exclamationis* L. (1785); they are detailed by Turner (1937) and Boursin (1964).

The typical form of the species (figs 1–4) ranges across the whole of Europe and into Asia as far as Afghanistan (Boursin 1961). In Central Asia it is represented by the very pale subsp. *serena* Alpheraky (1889) (figs 6, 8), which has been equated with a pale form occurring occasionally in Britain and Spain (and probably elsewhere) correctly called ab. *pallida* Tutt (1892). I shall return to this point later. In 1889 Leech described a new species, *Agrotis informis*, from Japan which is larger, greyer and more strongly marked than our *exclamationis* (figs 5, 7). Kozhanschikov (1937) figured part of the male genitalia of the two insects and demonstrated differences, and drew up a key to *Agrotis* species which separated *informis* and *exclamationis* in different groups characterised by differences in the male antennae. I can find no difference in the antennae; Inoue (1958) regards *informis* as merely a subspecies of *exclamationis*, and this is also my own opinion

after studying the type at the British Museum (Nat. Hist.), whose genitalia are damaged. Inoue gives the distribution as Hokkaido, Honshu, Kuriles and Amur territory. *Euxoa kurodakeana* Matsumura (1927) is a synonym of *exclamationis* subsp. *informis*. Then in 1934 another subspecies was described by Zerny from the High Atlas in Morocco and named subsp. *nigriorbis*. I have been unable to get hold of satisfactory material of this, but it is described as having enlarged and intensely black stigmata, most particularly the orbicular. The ground colour is said to be very variable, with many specimens having a glaucous powdering towards the costa of the fore wings. A black orbicular is very rare in British specimens of *exclamationis*, but I have seen it occasionally. Zerny's figures show the character well in s.sp. *nigriorbis*, though the stigmata do not look particularly large. From the photograph of *Lycophotia haruspex* Le Cerv given by Boursin (1928), I would judge it to be a form of s.sp. *nigriorbis*. As far as I know, the specimen is unique, and I am unaware of any preparation having been made of the genitalia. The specimen is female.

In Kashmir one finds the closely related *Agrotis duosigna* Hampson (1903) which appears to be endemic. It seems to be much less variable than *exclamationis*; a constant feature is the angulated reniform which gives it a resemblance to ab. *con juncta* Hirschke. Wedge-shaped marks in the subterminal area are more characteristic of some of the other *Agrotis* and *Euxoa*, though they are found in some specimens of *exclamationis*. Boursin (1954) has shown the genitalia of *duosigna* to be distinct.

A remarkably constant character of *exclamationis* seems to be the black collar mark, aptly described by Edward Newman as having 'a great resemblance to the conventional representation of a flying bird'. Even in albinos this feature is discernible, and I would rely on its absence to distinguish the occasional female *Agrotis clavis* Hufn. which otherwise resembles *exclamationis*. It is also present in *duosigna*, though perhaps less constantly; and in *Agrotis crassa* Hübn., which differs in other respects, too, it is much narrower.

The sexual dimorphism in the species under consideration is well known, and will not be dwelt upon now. Suffice it to say that occasionally males are found with more or less dark clouding on the hind wings, and to point out that in females of s.sp. *serena* the hind wings are nearly white like the males. I have not seen a female of ab. *pallida*; sometimes the hindwings of British females are distinctly pale towards the base, and some populations, notably those from E. Turkestan, have pale opalescent grey hind wings in the females.

In Britain, one sometimes sees specimens of *exclamationis* in September, and they are generally supposed to represent a second brood; I do not find them measurably different from June-July moths. In some parts of Europe, however, there is a strong second emergence (Spuler, 1905), and the moths are smaller than first-brood examples. Thus in examples from Hungary, first brood (May) specimens averaged 36.6mm (males) and 39.4mm (females) span and those of the second brood (August) 35.4mm (males) and 37.0mm (females) and had a distinctly smaller claviform.

I have examined specimens from all over Europe, and they appear not to differ from one another to any extent. There is perhaps a tendency for alpine specimens to average a little larger size, and for females to show a purplish brown hue; I have already remarked upon the paler hind wings of females from E. Turkestan, and both sexes of this population frequently show a beautiful glaucous coloration which I have only seen matched in a specimen from Italy.

In north Britain, the species is much less common than it is in the south, and

few specimens seem to exist in collections. I have not had the opportunity of examining very many, but in series those from Canna and Perthshire are a little smaller and darker than unselected series from southern England.

Agrotis exclamationis is individually so variable that it is fair to say that no two specimens are alike. Even so, collectors have neglected it, preferring to dally among other agrotids such as *denticulatus* Haw., *ripae* Hüb., *tritici* L. and *cursoria* Hufn. The variation is very difficult to classify satisfactorily, especially as information on the genetics of colour and pattern seems to be totally lacking. I have not yet succeeded in mastering a technique for breeding the moth in numbers, and attempts to produce a second brood have failed, the fully grown larvae hibernating in flimsy earthen cocoons. I have discovered 32 named forms scattered in the literature, and while some of these names are very helpful, others simply cause confusion because they are based on a number of characters which appear to vary independently, and which together make a unique individual. I shall try to assess the variation character by character, referring to the named forms where appropriate, on the broad basis of (i) background coloration, (ii) cross lines and (iii) stigmata. Some other types of variant do not fall into any of these categories and will be dealt with separately.

BACKGROUND COLORATION

Typical *exclamationis* have the fore wings light greyish brown in the males, a little darker and browner in females. The Linnaean type and the series in the Linnaean Collection (all males) are of this form. The colour is usually somewhat intensified towards the costa and beyond the postmedian line. The middle area of the wings frequently has faint clouds of darker shading, though sometimes it is absolutely uniform. The palest forms correspond to ab. *pallida* Tutt. In my experience, true *pallida* are very rare indeed, and I have only seen males. There are five in the Rothschild-Cockayne-Kettlewell Collection (hereafter referred to as RCK); I have seen it in very few other collections, and have never taken it myself. Tutt described the male as having fore wings pale whitish grey, hind wings white, and the females of a rather darker shade, with the hind wings also darker. Hampson (1903) and Warren (1909) were wrong in equating this with s.sp. *serena* Alph. Corti (1938) showed keener appreciation of the situation when he wrote, 'the commonest form from Ferghana, Bokhara, Saraw, Amdo and Yarkend (s.sp. *serena*) occurs in similar coloration as ab. *pallida* Tutt from Spain, England, Esthland and elsewhere'. Lempke (1962) is forthright in saying the two are different.

A much more frequent colour form is a clear reddish brown. Tutt calls this ab. *rufescens* and says it is one of the commonest varieties; personally, I have come across the deeper chocolate coloured ab. *brunnea* Tutt much more commonly. The pitchy black ab. *picea* Haw. (1809), said by Humphrey and Westwood (1842) and Warren to be a female form, is not uncommon in some districts, and in Herts at least males with very black fore wings are appearing and certainly belong to this form. Ab. *wehrlii* Vorbrot (1914) is a form of *picea* having a 4mm wide shining yellow ochre base of the fore wings and transverse bands. It may be unique, but I have a specimen showing more than a trace of yellow ochre between the antemedian line and the base of the wing.

A very pretty form has the costa red or purplish. This is ab. *costata* Tutt. It is most conspicuous in specimens with lighter coloured wings, but is detectable even in dark female ab. *brunnea* when it occurs. Tutt is quite definite in stating the costa is red, so one must take it that his definition excludes a rarer form in

which the costa is brown or blackish. I have one specimen in which a brown costal shade extends right round the whole rim of the fore wings—a strikingly beautiful moth.

Two other forms which it is convenient to remark upon here are: one in which the fore wings are finely freckled with darker scales and ab. *nervosa* Lempke (1962) in which the nervures of the fore wings are dark scaled, specially in the outer area (fig. 23). Both of these are fairly frequent, though certain specimens show the conditions better than others.

CROSS LINES

The four characteristic cross lines are typically present on the fore wings. The basal, antemedian and post-median are made up of two components, a pale, gently curved or wavy line upon which is superimposed a finer, blackish, dentate line. Superimposition is not exact, so that in the basal line, the pale component is further from the base, in the antemedian it is nearer the base and in the post-median again it is further from the base than the corresponding dentate line. The degree of development of these lines varies greatly—the pale component may be lost on the background coloration or be very conspicuous; the dentate lines may not be represented at all, they may occur as series of disjunct \square -shaped marks of varying shades of brown or blackish, or they may be complete. When these lines are particularly well developed we have ab. *catenata* Wize (1917) (fig. 11). The subterminal line is pale and dentate, bordered on one or both sides by darker clouds which render it more or less conspicuous. This line and its associated shade are seldom entirely absent. Quite commonly there is a narrow central shade crossing the middle of the wing through the reniform: this is ab. *centrifasciata* Lempke (fig. 12). Really well developed forms of this are rather rare. Ab. *virgata* Lempke is apparently excessively rare; in this the whole of the central area of the wing between the ante- and post-median lines is darkened. One specimen in RCK approaches this; I have seen no other. Culot (1909–13) described ab. *posteli* as follows: ‘ground of fore wings very smoky, with all the subterminal area and the reniform sooty black. The subterminal area entirely of a uniform black’. Goodson (pers. comm.) expresses the opinion that all examples with a darkened subterminal area should be included here, and I am inclined to agree. There is a magnificent female specimen in RCK ex. Hanbury coll. which has both basal and outer areas of the fore wings deep brown, and the central region light brown (fig. 10). Forms approaching this specimen are not altogether rare, but I have yet to see one which exactly matches Culot’s description and figure. Then we have ab. *marginata* Peerdeman (1962), described as having the part of the fore wings between the submarginal line and the fringe paler and sharply contrasting, and ab. *signata* Lempke with the submarginal line on the upper side of the fore wing bordered on its inner side by a dark suffusion and sharply contrasting. Good examples of both these are rare. An unnamed form has dark clouding between the subterminal line and the fringe. Mr. A. J. Wightman has a male and a female both from Pulborough, Sussex, in which the whole of the outer half of the fore wings beyond the reniform is dark (figs. 33, 34); I have myself taken a less extreme specimen at Bushey, and there is a very fine example in the Society’s own collection taken at Sandwich, Kent, by the late Mr. J. O. T. Howard. It is evidently a recurrent form and I have decided to name it ab. *umbrifera* ab. nov. (described in appendix). It appears to me to have more similarity to ab. *centrifasciata* than to ab., *posteli*.

STIGMATA

The three characteristic stigmata are usually well developed. In the extremely rare ab. *obsoleta* Tutt all the markings are absent. The specimen which is evidently the basis of Tutt's description is in RCK, labelled J. Perry, S. Norwood, July 1890 ex Banks coll. This shows no markings at all (fig. 9). Tutt mentions another taken at Aberdeen by Esson. The specimen illustrated, very pale, shows the markings full-sized and just visible. It is also in RCK and labelled Yorks. R. Dutton ex Crabtree coll. These appear to be albinistic forms comparable to those which occur occasionally in *Amathes c-nigrum* L., *A. xanthographa* F., etc. Some dark forms have the stigmata very indistinct, but these are quite different from ab. *obsoleta*.

There is a much more frequent form in which all the stigmata are milk chocolate coloured; the claviform especially is usually black. This seems to be a first step in the dilution of stigmatal pigmentation, and there is a good series in RCK illustrating steps in the approach to ab. *obsoleta*.

The orbicular is occasionally completely absent. This is the essential character of ab. *ostrogovichii* Dioszeghy (1935), though the complete description refers to the pale ground colour of the fore wings, absence of cross lines, reduction of claviform and presence of a terminal shade. I do in fact possess a specimen which fits this description remarkably well (fig. 24), but nevertheless the case in point illustrates the fact that the value of a varietal name usually varies inversely with the length of the description! Typically the orbicular is more or less circular in outline, a little darker than the background coloration, and more or less completely enclosed by darker etching. It may be the same colour as the background and merely demarcated by the darker ring. It is frequently annulated, with a darker, solid centre. It is very rarely completely solid and black (cf. s.sp. *nigroribus*), though in ab. *nigrata* Alexinschi & Pieu (1953), which does not appear to have been recorded in Britain, all the stigmata are enlarged and coloured intense black, and the hind wings are dark ashy grey-violet in both sexes. When the orbicular is very pale and lacks the dark etching, examination with a lens is necessary to find it, and to distinguish the specimen from ab. *ostrogovichii*. Rarely, the orbicular touches the reniform without alteration to the shape of either—ab. *junctoides* Lucas (1959) (fig. 14), or it may be connected to the reniform by a narrow isthmus—ab. *semiconfluens* Lempke. It may be dot-like, oval or of irregular shape. Rather often, it is extended in tear-drop shape towards the base of the wing, to touch the antemedian line—ab. *protensa* Lempke (fig. 15). Frequently, the outline is more distinct on the lower edge of the orbicular, and may fade out completely on the costal side. In one version of this, the stigma is represented by a sinuous hair-like mark which may or may not extend from the antemedian to the reniform.

The reniform is much less variable. Typically, it is more or less kidney shaped with the concavity facing the postmedian line, and a little darker than the background, more sharply defined below than towards the costa. It is uncommon for the stigma to be completely enclosed by black etching. Occasionally, the whole outline becomes indistinct and 'fuzzy'. Rather rarely, it touches the postmedian line, in ab. *renitangens* Lempke. This may be achieved in two ways—either the whole stigma is moved outwards without change of shape (fig. 18), or a limb extends from the upper half of the stigma to the line (fig. 17). In another fairly frequent form, ab. *conjunctoides* Lucas, a dark bar connects the reniform to the postmedian line, running from the middle of the concavity of the stigma (fig. 19). Occasionally, there are two or even more such bars. In an unnamed and rather

rare condition, the reniform is continuous with a dark costal shade, forming a rounded lobe which projects from this shade. In ab. *conjuncta* Hirschke (1910), a 'tail' runs towards the base of the wing from the lower side of the reniform, stopping somewhere near the orbicular (fig. 20). The tailed reniform is a constant feature of *Agrotis duosigna*.

A peculiar and rare development is of a whitish 'inter stigma' between the orbicular and reniform, having a sharp, circular outline of its own. In its most beautiful expression, it is combined with ab. *juncta* Tutt (see Newman, E., 1869, p. 326, fig. 529, lower specimen), so that it is a white speck in a dark island (figs. 35, 36). Rarely too, is found a pale streak running from the antemedian line through the orbicular to the reniform. Barrett (1896) is referring to this when he describes a yellowish spot between the two upper stigmata.

The claviform is usually much blacker than the other two stigmata, narrowly wedge shaped, bluntly or more sharply pointed at the outer extremity, and runs from the antemedian, upon which it is seated, about halfway to the postmedian line. In RCK there is a male, Tring, Herts, 26.vi.53, A. L. Goodson, in which the claviform is sabre shaped and very distinct, and runs four-fifths of the way to the postmedian, but further distortions in this direction are usually associated with alterations to the other stigmata, and will be referred to later. Not uncommonly, the claviform is reduced, but it is extremely rare to find it less than 1½ times as long as broad. I have one specimen in which it is little more than a brown lobe projecting from the antemedian, and in RCK is one labelled Wells, Norfolk, 16.vi.51, R. G. Todd, in which the claviform is incorporated into the antemedian line, which has a particularly strong zigzag between the level of the claviform and the inner margin of the wing. One of the rarest varieties is ab. *basilinea* Peerdeman, in which a black line runs from the claviform to the base of the wing (fig. 13).

Ab. *quadrimacula* Wehrli (1918) has a fourth spot somewhere between the orbicular and claviform, which is very variable in its development. Sometimes it is very black and appears to be budded off the claviform, and at other times it is the browner colour of the reniform and seems to be related to ab. *conjuncta*, the 'tail' being detached (figs. 21, 22). Frequently, the fourth spot is asymmetrically developed. Occasionally, an extra spot is found between the orbicular and reniform, or between the reniform and the postmedian line, and these extra spots are also often developed on one side only.

Now I come to a group of well known and very spectacular aberrations usually referred to as ab. *plaga*, all of which show a degree of fusion of the stigmata coupled with a breaking down of the outlines and a 'spilling' of pigment into surrounding areas of the wing. The true ab. *plaga* Stephens (1834) was described as follows: 'Anterior wings griseous brown with a very obscure palish waved streak near the hinder margin, and on the disc a stout deep black longitudinal dash, towards the inner margin, and about one third the length of the wing; adjoining to this, towards the apex of the costa is a second very faint brown dash; posterior wings fuscous'. It appears to be extremely rare. Tutt (1892) paraphrased this without altering the diagnosis, and I attribute the present confusion to Barrett who, intentionally or otherwise, connected all the forms with joined or blurred stigmata under the name. There is some ambiguity in his phraseology. All those specimens with the three stigmata joined, but retaining their general outline, are ab. *juncta* Tutt (figs. 25–28, 30). In *plaga*, there is no connection between the elongated claviform and the brown dash above it which represents the other two stigmata (fig. 29). There remain those forms in which the outline of the reniform has broken down, and strigae or lineolae extend from its outer side

to the postmedian line or beyond. Comparing Newman's figure (p. 326, fig. 529, upper), from which Tutt described ab. *lineolatus*, with Culot's figure of ab. *cuspidata*, there are to be found two distinguishing characters, though neither author points them out: (i) in *cuspidata*, the orbicular and reniform remain distinct and separate, and in *lineolatus* they are united into a blurred patch; (ii) in *cuspidata* the claviform is of normal length, and in *lineolatus* it extends at least four-fifths of the way to the postmedian line (figs. 31, 32). Even so, it is not always easy to ascribe one of these variants to its correct category.

In some specimens, a series of small wedge-shaped or dart-shaped marks occurs just inwards of the postmedian. They are much more characteristic of other *Agrotis* and *Euxoa* such as *duosigna* Hamps., *crassa* Hübn., *cursoria* Hufn. and *tritici* L.

Lastly, there are certain other forms which have received names but which do not fit into any of the above categories.

Ab. *unicolor* Hübn. refers to a figure in *Sammlung Europaeische Schmetterlinge*. It was thought by Tutt who misdescribed it, saying the orbicular is lacking (really it is the claviform which is absent), and by Treitschke to be a form of *exclamationis*, and by Guenée (1852) and Boursin (1964) to be a form of *Euxoa aquilina* Schiff. No specimen exists and it is best forgotten.

Ab. *dufranei* Lambillion (1907) as described is probably a unique combination of characters and therefore in my opinion worthless, as also is ab. *invertilinea* Le Charles (1926). This latter is probably a teratological form, as is a specimen in RCK whose wing tips lack pigment. Ab. *csutaki* Dioszeghy is also unique as described, though the name could be applied to specimens in which both orbicular and claviform were absent. I have never come across such a specimen.

HINDWING VARIATION

The hind wings of the males are usually white or greyish white, the nervures variably conspicuous. A lunule is more or less distinct, and seldom completely invisible. Postmedian specks occur on the nervures fairly frequently. A dark cloudy border extending from the postmedian line is rare but possibly overlooked. The fringe is white, sometimes with a darker line through it.

The hindwings of the females are darker than those of the males, and much more variable. They are whitish- or brownish-grey, blackish grey in ab. *picea*. Usually they are paler towards the wing base, and this may produce a more or less distinct border. A lunule is usually clearly visible. Postmedian specks cannot be distinguished against the darker ground colour, but the nervures are conspicuously darker in many specimens. The fringe is whitish, usually with a darker line through it; it is strikingly pale in *picea* and some *brunnea* forms.

UNDERSIDE VARIATION

There appears to be considerable minor variation; the underside of the fore wings is very glossy, greyish brown in males and darker in females. There is a very narrow, sharply defined pale line along the edge of the wing, at the base of the cilia, which is present on the hind wing also. In males, there is usually a faint dark shadow across the area of the stigmata, and the reniform may stand out quite sharply, especially along its outer edge. The postmedian line, too, is often well developed, better so towards the costa, and there is occasionally a faint shade at the apex of the wing. In females, markings are usually indistinguishable against the darker background, except for a small reniform patch and the costal end of the postmedian line. The hindwings are less glossy; those of the males are

whitish, darkly irrorated towards the costa, often with a dark discal spot of variable size. The postmedian line is represented by a series of specks on the nervures, which may become more or less linked by dark scales between, especially towards the costa. Hindwings of females are silvery grey, and there is a strong tendency for a dark border to develop outside the postmedian line.

ASYMMETRY

At the Annual Exhibition of the South London Entomological & Natural History Society, 1957, W. E. Minnion and B. S. Goodban showed a specimen taken at Eastcote, Middx, in 1957 at mercury vapour light, the left side of which was albino, the right side normal. This is the only bilateral mosaic I have heard of, though minor differences in pattern of the fore wings are not uncommon. There is a female in the University Museum at Oxford, ex W. Jones coll., in which the right reniform is surrounded by a dark shade; on the left side, the reniform has lost its identity, and two broadly triangular patches extend inwards from the postmedian, the lower, level with the claviform, reaching almost to that mark, which is normally developed. Most frequently, an extra spot appears on one of the wings in the stigmatal area; I have already referred to this. In RCK, there is a male, Tring, 26.vi.55, A. L. Goodson, with a border to the left hind wing.

GYNANDROMORPHY

There are two bilateral gynandromorphs in RCK: Whitchurch, Salop, 2.vi.01, Rothschild beq., right side female, and Feltham, Middx, 25.vi.54, E. W. Classey, right side female. In addition, one was taken at Glenageary, Co. Dublin, June, 1960 by E. S. A. Baynes, left side female (Baynes, 1964), and one at Ledbury, Heref., 20.vii.68 by M. W. Harper, right side female.

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APPENDIX

Named Aberrations of *Agrotis exclamationis* L.

basilinea Peerdeman, M. P. (1962, *Ent. Ber. Amst.* 22:44).

A black line runs from the claviform stigma to the base. Holotype male Amsterdamse Bos. 18.vi.60 in coll. author.

brunnea Tutt, J. W. (1892, *Brit. Noct.* 2:65).

The anterior wings of a dark reddish brown, much darker than in var. *rufescens*, with very dark strigae and stigmata, sometimes not so distinct as in the paler varieties; the hind wings also comparatively dark.

catenata Wize, K. F. (1917, *Roczn. Tow. Nauk w Poznanin*, 44:10).

Crosslines distinct and dentate. See Lempke (1962) pl. 2, fig. 5 male.

List of Illustrations

VARIATION IN *AGROTIS EXCLAMATIONIS* L.

Plate IX

- 1 Nominotypical male, Tring, Herts, 8.vi.45, A. L. Goodson. RCK coll.
- 2 another female, Tring, bred, 7.vi.45, A. L. Goodson. RCK coll.
- 3 another male, Tring, 7.vi.45, A. L. Goodson. RCK coll.
- 4 another female, Tring, 14.vi.45, A. L. Goodson. RCK coll.
- 5 s.sp. *informis* Leech male, Tokyo, prov. Musashi, Honshu plains, 12.v.95, A. E. Wileman. Brit. Mus. (Nat. Hist.) coll.
- 6 s.sp. *serena* Alph. male, Samarkand, 1892, O. Herz. Brit. Mus. (Nat. Hist.) coll.
- 7 s.sp. *informis* Leech female, Hokkaido, Andrews. A. E. Wileman. Brit. Mus. (Nat. Hist.) coll.
- 8 s.sp. *serena* Alph. female, Samarkand, 1892, O. Herz. Brit. Mus. (Nat. Hist.) coll.
- 9 ab. *obsoleta* Tutt male, Yorks, R. Dutton ex Crabtree coll. RCK coll.
- 10 ab. *posteli* Culot female, ex Hanbury coll. RCK coll.
- 11 ab. *catenata* Wize male, Bushey, Herts, 18.vii.65, B. Goater coll.
- 12 ab. *centrifasciata* Lempke female, 1910, J. A. Clarke coll. RCK coll.

Plate X

- 13 ab. *basilinea* Peerdeeman female, Hunts, 1904, Dewar. RCK coll.
- 14 ab. *junctoides* Lucas male, Church Stretton, June 1929, Dewar. RCK coll.
- 15 ab. *protensa* Lempke male, Mill Hill, Middx, 11.vi.59, B. Goater coll.
- 16 ab. *semiconfluens* Lempke female, Mill Hill, 28.vi.58, B. Goater coll.
- 17 ab. *renitangens* Lempke male, Worcester, 16.vi.63, M. W. Harper coll.
- 18 ab. *renitangens* Lempke female, Wicken, 29.vii.35, A. V. L. Bowes. RCK coll.
- 19 ab. *conjunctoides* Lucas male, Wye, June 1892, ex Hanbury coll. RCK coll.
- 20 ab. *conjuncta* Hirschke female, Freshwater, I.o.W., 1.ix.59, B. Goater coll.
- 21 ab. *quadrimacula* Wehrli male, Bushey, Herts, June 1966, B. Goater coll.
- 22 ab. *quadrimacula* Wehrli female, Tring, 1.vii.58, A. L. Goodson. RCK coll.
- 23 ab. *nervosa* Lempke female, Rainham, Sussex, May 1896, Burrows. RCK coll.
- 24 ab. *ostrogovichii* Dioszeghy male, Mill Hill, 30.v.63, B. Goater coll.

Plate XI

- 25 ab. *juncta* Tutt female, Rainham, Sussex, 9.vii.94, Burrows. RCK coll.
- 26 ab. *juncta* Tutt female, Eastbourne, Sussex, 10.vi.31, A. J. Wightman coll.
- 27 ab. *juncta* Tutt male, Halton, Bucks, 18.vii.54, A. L. Goodson. RCK coll.
- 28 ab. *juncta* Tutt male, Halton, 8.vii.58, A. L. Goodson. RCK coll.
- 29 ab. *plaga* Steph. female, Long Stretton, June 1929, Taitt. RCK coll.
- 30 ab. *juncta* Tutt male, Mill Hill, 27.vi.55, B. Goater coll.
- 31 ab. *cuspidata* Culot male, Tring, 9.vii.65, A. L. Goodson. RCK coll.
- 32 ab. *lineolatus* Tutt female, Camber, Sussex, 27.vi.38, G. V. Bull. B. Goater coll.
- 33 ab. *umbrifera* Goater holotype male, Pulborough, Sussex, 14.vi.66, A. J. Wightman coll.
- 34 ab. *umbrifera* Goater allotype female, Pulborough, 24.vi.61, A. J. Wightman coll.
- 35 male ab., Playden, Sussex, 14.vi.64, M. W. F. Tweedie coll.
- 36 male ab., Elsfield, Oxon, 10.vi.62. RCK coll.

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centrifasciata Lempke, B. J. (1962, *Tijdschr. Ent.* **105**:170).

Forewings with a distinct central shade. Holotype female Lelystad, 5.vi.54. Barrett (1896) pl. 127 fig. 1(i) is this.

conjugata Hirschke, (1910, *Verh. zoo. bot. Ges. Wien* **60**:416).

From the lower margin of the reniform runs a black marginal longitudinal streak to near the lower margin of the orbicular without quite reaching it. A female from near Prague (translated).

conjunctionoides Lucas, J. A. W. (1959, *Ent. Ber.* **19**:205).

From the reniform runs a dark line to the second transverse line. Holotype Leiden, 11.vi.56. In another specimen, also from Leiden, the dark line runs till the orbicular.

costata Tutt, J. W. (1892, *Brit. Noct.* **2**:65).

Has the anterior wings of a greyish ground colour, with the costa broadly reddish, the transverse lines and stigmata becoming obsolete in the costal area, but well developed in the central area and towards the inner margin.

csutaki Dioszeghy, L. (1935, *Verh. sieben. Ver. Naturw.* **83-4**:127).

Forewings yellowish grey, claviform and orbicular absent. Reniform roundish, black-brown, small. Basal and outer regions of the wing darker, in the latter three fine black-brown dart-shaped marks. Hindwings dirty white, rather yellowish grey towards the fringes. The form has a strange appearance, very different from the typical (translated).

cuspidata Culot, J. (1909-13, *Noct. et. G.* **1**:70, pl. 11, fig. 8) female.

With six lancet-shaped jet-black marks pointing outwards in the centre of the wing on the outer boundary of the reniform stigma and below it; the bottom one representing the claviform is the largest. Both the orbicular and reniform are visible but not emphasised. St. Lothian (Jura), coll. Oberthur.

dufraeui Lambillion, L. (1907, *Rev. mens. Soc. Namur.* **7**:26).

A little larger than ordinary males. Ground of forewings a yellowish grey, with the costa, nervures and a large marginal band a brownish grey as in the females. Ordinary lines absent; reniform half obliterated, the orbicular invisible and the claviform, always so well marked as a sign of exclamation in the type, obliterated leaving scarcely any pale traces. Hindwings pure white, with nervures scarcely deeper. Frameries, Belgium (after H. J. Turner).

invertilinea Le Charles, L. (1926, *Amat. Pap.* **3**:64, pl. 12, fig. 5).

Generally smoky. Forewings a uniform deep reddish brown. Usual lines of the type absent, leaving only a trace of the subterminal visible. Reniform black, enlarged by cloudy contours. The median shade, which is absent in the type, is strongly marked in the form of a cross below the reniform. Orbicular absent, claviform thickened by a cloudy contour. Lower wings suffused with brown, fringes light. Seine-et-Oise.

juncta Tutt, J. W. (1892, *Brit. Noct.* **2**:65).

The orbicular, reniform and claviform all united . . . a sub-variety of the last [plaga] in which the three stigmata are all united in the form of black streaks, one streak replacing the orbicular and reniform, another the claviform stigma. This is not at all a common development. I have specimens from Deal and Greenwich.

junctoides Lucas, J. A. W. (1959, *Ent. Ber.* **19**:204).

Orbicular and reniform touching each other. Holotype, Leiden, 2.vii.55.

lineolatus Tutt, J. W. (1892, *Brit. Noct.* **2**:67).

This strange aberration is figured in Newman's *British Moths*, p. 326, fig. 1. The peculiar development consists in the formation of lineolae running out

from the reniform stigmata and others taking the place of the cuneiform spots. Some specimens show the development much better than others, but I would include all forms showing this peculiarity under this name.

NOTE: the figure in *British Moths* (1869) in the British Museum Department at Tring is utterly different (heavily inked and smeared) from the version in my copy of *British Butterflies and Moths* (? date). The latter agrees much better with Tutt's description, and there are plenty of actual specimens like it. (B.G.)

marginata Peerdeman, M. P. (1962, *Ent. Ber. Amst.* 22:44).

The part of the forewings between the submarginal line and the fringe paler and sharply contrasting. Holotype female Amsterdamse Bos., 23.vi.60, in coll. author. See Lempke (1962) pl. 2, fig. 2.

nervosa Lempke, B. J. (1962, *Tijdschr. Ent.* 105:170, pl. 2, fig. 4) male.

The nervures of the forewing are darkened, especially in the outer half of the wings. Holotype male, 4–10.vi.59, Eijs, van de Pol.

nigrata Alexinschi, A. & Pieu, M. (1953, *Bull. sti. Acad. Repub. rom.* 5:496).

A melanic form, in which the orbicular, reniform and claviform stigmata are enlarged and coloured intense black. The ground colour of the upper side of the hindwings is a darker ashy grey-violet in both sexes. It is considered to be widespread in Moldavia; also in Jassy and Tecuci (translated).

obsoleta Tutt, J. W. (1892, *Brit. Noct.* 2:65).

The anterior wings of a pale greyish brown without any transverse lines or stigmata. A specimen of this variety was sent to me for examination last year (1890) as a new *Leucania* so deceptive was its superficial appearance. This was taken at Dulwich. I have a specimen . . . taken by Mr. Esson at Aberdeen. These are the only specimens I have seen of this perfectly obsolete variety.

NOTE: a specimen in RCK coll., male, labelled J. Perry, S. Norwood, July 1890 ex Bankes coll. must be the first specimen mentioned by Tutt. It is certainly that described by Barrett ' . . . of a uniform brownish white, without trace of either transverse lines or stigmata, and with scarcely a trace even of the black bar across the front of the collar. (Bankes coll.)'.

ostrogovichi Dioszeghy, L. (1935, *Verh. sieben. Ver. Naturw.* 83–4:127.)

Collar black, forewings pale yellowish grey, claviform small but clearly defined, *orbicular* absent. Reniform fairly clearly defined. Both crosslines absent, but a brown-grey shade, which is sharply emphasised, extends from the subterminal line to the fringes (translated).

pallida Tutt, J. W. (1892, *Brit. Noct.* 2:65).

The anterior wings of the males of a pale whitish grey colour, the basal and elbowed lines fairly distinct, as also are the orbicular, reniform and claviform stigmata. The hindwings white. The females of the variety have the ground colour of a rather darker shade, and the hindwings also darker.

picea Haworth, A. H. (1809, *Lep. Brit.* p. 220).

Alis piceo-nigricantibus stigmatibus ordinarius rotundatis nigris . . . Praecedenti [exclamationis] nimis affinis. Differt. longe minor, alis saturatioribus absque strigis. Stigmata duo antica oblonga; tertium stigma subrotundum, nec ullo modo reniforme vel cordiforme. Posticae alae omnino fuscae ciliis albis. Exemplarium unicum feminae solum vidi.

NOTE: subsequent descriptions have failed to point out the whitish fringes of the hindwings, which are a very noticeable feature. Males of this occur, though females are more frequent. (B.G.)

plaga Stephens, J. F. (1834, *Ill. Haust.* 4:388 as *Agrotis plaga*).

Anterior wings griseous brown with a very obscure palish waved streak near

the hinder margin, and on the disc a stout, deep black longitudinal dash, towards the inner margin, and above one-third the length of the wing; adjoining to this towards the apex of the costa is a second very faint brown dash; posterior wings fuscous.

NOTE: the figure in Seitz Supplement to the Palaearctic Noctuidae (7a) is in fact ab. *cuspidata* Culot, and almost identical with Culot's own figure. Corti's opinion was that *cuspidata* was simply an extreme form of *plaga*.

posteli Culot, J. (1909-13, *Noct. et. G.* 1:70, pl. 11, fig. 7).

Ground of forewings very smoky, with all the subterminal area and the reniform sooty black. The subterminal area entirely of a uniform black. Pas-de-Calais.

protensa Lempke, B. J. (1962, *Tijdschr. Ent.* 105:169).

The orbicular lengthened in the direction of the base and touching the antemedian line. Holotype male, Amsterdam, 14.vi.32, van der Meulen.

quadrimacula Wehrli Orig. Descr. Wehrli, E. (1918, *Mitt. Thurgau. nat. Ges.* 20:248).

Between the three stigmata and below the orbicular a fourth isolated dark brown spot (translated).

renitangens Lempke, B. J. (1962, *Tijdschr. Ent.* 105:169).

The reniform stigma touches the postmedian line. Holotype male, Melissant, 29.vi.61, Huisman.

rufescens Tutt, J. W. (1892, *Brit. Noct.* 2:65).

The anterior wings are of a clear reddish grey, intermediate in shade between the grey of var. *pallida* and the dark reddish brown of var. *brunnea*; the transverse lines and stigmata are generally clearly and well developed in both sexes, but the hindwings of the females are darker than those of the males.

semiconfluens Lempke, B. J. (1962, *Tijdschr. Ent.* 105:168).

Orbicular and reniform connected by a narrow isthmus. Holotype female, Slijk-Ewijk, 18.vii.61, van de Pol.

signata Lempke, B. J. (1962, *Tijdschr. Ent.* 105:170).

The submarginal line on the upper side of the forewings bordered on its inner side by a dark suffusion and sharply contrasting. Holotype female, 13.vi.30, Weesp. Zool. Mus.

umbrifera ab. nov.

A dark suffusion covers the whole of the outer half of the forewings from the central fascia. Holotype male, Pulborough, Sussex, 14.vi.66, A. J. Wightman. Allotype female, Pulborough, Sussex, 24.vi.61, A. J. Wightman.

virgata Lempke, B. J. (1962, *Tijdschr. Ent.* 105:168, pl. 2, fig. 3).

The central area of the forewings between the antemedian line and the postmedian line is distinctly darkened. Holotype male, Montfort, 16.vi.61, Maasen.

wehrlii Vorbrodt, K. (1914, *Schm. Schw.* 2:622).

A very striking female form of *picea* Haw. with 4mm wide shining ochre-yellow base of the forewings and transverse bands. Ittingen, Switzerland (translated).

(*unicolor* Hübn.) (1809-13, *Samml. Eur. Schmett.* pl. 117, fig. 544).

Tutt (1892) defines the ab. thus: 'the orbicular absent, the other stigmata distinct', and goes on to say, 'I believe this to be a var. of *exclamationis*. Hübner's figure may be described as follows: forewings dark reddish brown with the discoidal stigmata outlined in dark. Hindwings grey, the outer margin reddish, nervures almost black. My specimens, which I refer to this variety are of a reddish brown; somewhat similar to var. *obsoleta* in the

absence of transverse strigae, with the orbicular absent or imperfectly developed, but the other stigmata distinct. Guenée refers Hübner's *unicolor* to *aquilina*, but Treitschke considers it to be a var. of *exclamationis*.

Warren in Seitz (1909), evidently quoting Tutt, says, 'the same [as *obsoleta*], but with the claviform and reniform outlined in dark.'

Boursin (1964) considers *unicolor* Hüb. to be a form of *aquilina* Schiff.

Hübner's original figure shows the *claviform* absent, not the *orbicular*, hence Tutt's and Warren's descriptions are quite wrong. I describe the figure: forewings light yellowish brown, *orbicular* and *reniform* outlined in black, their centres having the same colour as the rest of the wing; cross lines and *claviform* absent; hindwings whitish, with veins and lunule distinct: male.

No specimen exists as the basis for the original figure, and so its true identity will remain a matter of conjecture. (B.G.)

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FIELD MEETINGS,

CHILBOLTON DOWN, HANTS—21st September 1968

Leaders: Rev. D. J. L. AGASSIZ and Mr. D. W. H. FFENNELL

Seven members and ten guests arrived on the Down and soon began searching for larvae of microlepidoptera. Larvae of the following species were found: *Enicostoma lobella* Schiff. and a *Parornix* species on Blackthorn; *Bucculatrix frangulella* Goeze and *Stigmella catharticae* Staint. on *Rhamnus catharticus* L.; *Acleris shalleriana* L. and *Phyllonorycter lantanella* Schrank on *Viburnum lantana* L.; also a larva of *Cabera pusaria* L. on Birch and one of *Euphyia ceculata* Hufn. on *Galium*. Adults of *Pararge aegeria* L., *Coenonympha pamphilus* L., *Aglais urticae* L., *Polyommatus icarus* Rott., *Orgyia antiqua* L., *Plusia gamma* L. and *Epinotia tenerana* Schiff. were seen. Larvae of the sawfly, *Allantus truncatus* Klug were found on *Poterium sanguisorba* L. and members saw the Stag-horn fungus, *Clavaria rugosa* (Bull). A search of *Thesium humifusum* DC. yielded no signs of *Epermenia insecurella* Staint.

Lunch was taken during a heavy shower and when the next downpour came the party moved to another locality the other side of the road. There heads of *Erigeron acer* L. containing larvae of *Cochylidia erigerana* Wals. and *Coleophora squamosella* Staint. were collected; also noted were mines of *Arocercops omisella* Staint. on *Artemisia vulgaris* L., larvae of *Gastropacha quercifolia* L. and on the wing *Stenoptilia zophodactyla* Dup.

The party then went by car, during more heavy rain, to Mr. ffennell's house at Martyr Worthy where he kindly provided tea amid his collection. After tea and when the rain had stopped heads of Scabious were collected in the hopes of breeding *Kyra cirrigerella* Zinck. and other species. *Olethreutes lacunana* Dup. and *Argyresthia semitestacea* Curt. were seen on the wing. Some collected seeds of *Pimpinella saxifraga* L. for larvae of *Eupithecia pimpinellata* Hübn. and *Cataplecta profugella* Staint.

OXSHOTT, SURREY—12th October 1968

Leaders: Mr. P. C. HOLLAND and Mr. T. R. EAGLES

This meeting was held jointly with the London Natural History Society. The day was very wet until about 2 o'clock. Even then the foliage and the grass were soaked. The President, Mr. B. Goater, was there so the mosses received attention. Mr. Bruce Ing was also present and he and one of the leaders, Mr. Peter Holland, were able to tell us about the Mycetozoa (Myxomycetes).

Perhaps the most noteworthy fungus was *Boletus holopus* Rost. apud Sturm, but we were also struck by the numbers of *Russula claroflava* Grove. One of the commonest pests was *Heterobasidion annosum* (Fr.) Bref.

The fungi were recorded as follows:

MYXOMYCETES: *Comatricha nigra* (Pers.) Schroet., *Didymium iridis* (Ditm.) Fr., *Ceratiomyxa fructiculosa* (Mill.) Macbr.

ASCOMYCETES: *Claviceps purpurea* (Fr.) Tul., *Coryne sarcoides* (Jacquin ex S. F. Gray) Tul.

HETEROBASIDIOMYCETES-TREMELLALES: *Calocera viscosa* (Pres. ex Fr.) Fr., *Dacrymyces deliquescens* (Bull.) Duby; UREDINALES: *Melampsoridium betulinum* (Fr.) Kleb. (on *Betula*).

APHYLLOPHORALES: *Sparassis crispa* (Fr. ex Wolf.) Fr., *Trichopsis rutilans* (Schaeff. ex Fr.) Singer, *Chondrostereum purpureum* (Pers.) Fr., *Clavinulopsis helvola* Pers. ex Fr., *Coriolus versicolor* (L. ex Fr.) Quél., *Heterobasidion annosum* (Fr.) Bref., *Phaeolus schweinitzii* (Fr.) Pat., *Piptoporus betulinus* (Bull. ex Fr.) Karst.

AGARICALES: *Amanita fulva* (Schaeff.) Sec., *A. muscaria* (L. ex Fr.) Hooker, *A. rubescens* (Fr.) S. F. Gray, *Boletus badius* Fr., *B. bovinus* L. ex Fr., *Fuligo septica* (L.) Weber var. *flava*, *Leocarpus fragilis* (Dickson) Rost., *Helvella crispa* Fr., *Apiocrea chrysosperma* (Tul.) Sydow (imperfect, Sepedonium stage), *Pseudohydnum gelatinosum* Pers. ex Scop., *Phragmidium violaceum* (Schultz) Wint. (on *Rubus*), *Sebacina incrustans* (Pers.) Tul., *Stereum hirsutum* (Willd.) Pers., *S. sulphuratum* (Willd.), *Thelephora terrestris* Fr. Ehrh.) Fr., *Trametes rubescens* (Alb. et Schw.) Fr., *Boletus holopus* Rost. apud Sturm, *B. luteus* L. ex Fr., *B. piperatus* Bull. ex Fr., *B. scaber* Bull ex Fr., *Clitocybe nebularis* (Batsch ex Fr.) Kumm., *Collybia cookei* (Bres.) Arnold, *C. dryophila* (Bull. ex Fr.) Kumm., *C. maculata* (Alb. et Schw. ex Fr.) Kumm., *Coprinus micaceus* (Bull. ex Fr.) Fr., *Cortinarius hemitrichus* (Pers. ex Fr.) Fr., *C. semisanguineus* (Fr.) Gill., *Galerina hypnorum* (Schrank ex Fr.) Kühn., *Gomphidius rutilus* (Schaeff. ex Fr.) Lund., *Gymnopilus penetrans* (Fr. ex Fr.) Murr., *Hebeloma crustuliniforme* (Bull. ex Fr.) Quél., *Hypoloma fasciculare* (Huds. ex Fr.) Kumm., *Laccaria amethystea* (Bull. ex Mér.) Murr., *Agaricus silvicola* (Vitt.) Peck, *Amanita citrina* (Schaeff.) S. F. Gray, *Russula claroflava* Grove.

GASTEROMYCETES: *Lycoperdon perlatum* Pers., *Mutinus caninus* (Huds.) Fr., *Lactarius rufus* (Scop. ex Fr.) Fr., *L. turpis* (Weinm.) Fr., *L. vietetus* (Fr.) Fr., *Mycaena epipyterygia* (Scop. ex Fr.) S. F. Gray, *M. galopus* (Pers. ex Fr.) Kumm., *M. sanguinolenta* (Alb. et Schw. ex Fr.) Kumm., *Paxillus involutus* (Batsch ex Fr.) Fr., *Russula betularum* Hora, *R. emetica* (Schaeff. ex Fr.) S. F. Gray, *R. ochroleuca* (Pers. ex Sec.) Fr., *Tricholoma fulvum* (DC. ex Fr.) Sacc., *T. sulphureum* (Bull. ex Fr.) Kumm., *Scleroderma aurantium* Vagill. ex Pers., *S. verrucosum* (Vail.) Pers.

In all 65 species were discovered; in addition, a mild-tasting, purple *Russula*, darker towards the centre, with a markedly slimy cap and dropping a buff spore

print, seems to have been *R. puellaris* Fr. and a stomatic 'tar-spot' type of fungus on *Ulmus* could well have been *Euryachora ulmi* (Schleicher ex Fr.) Schroet. in its onidial stage, but it has so far defied positive identification.

EFFINGHAM, SURREY—19th April 1969

Leader: Mr. R. F. BRETHERTON

This, the first field meeting of the season, was held as an experiment, in the evening, with the particular object of finding the local *Bapta distinctaria* H.-S., the first appearance of which usually coincides with the appearance of the sloe blossom. Nine members and friends met outside Effingham Junction station at 7 p.m.

Unfortunately, there was a cold east wind and a very dry atmosphere, with temperature ranging from the low forties Fahrenheit to little above freezing point by the end of the meeting. Before dusk lichen-covered sloe bushes were beaten in the hope of finding the case-bearing psychid larva of *Prouzia betulina* Zell., but without success; a larva of *Laspeyresia flexula* Schiff. was, however, taken by this means. Later, after setting up a mercury vapour light trap and a Heath light sheet, the party worked a mile of sloe bushes and other vegetation beside the lane towards Bookham Common. Only a few sloes were yet in bloom, and no *B. distinctaria* were found; a few *Europaea badiata* Schiff. and *Diurnae fagella* F. were caught on the wing. The light did rather better, yielding between them some 40 moths of 11 species: *Orthosia gothica* L., *O. cruda* Schiff., *O. stabilis* Schiff., *O. populeti* F., *O. incerta* Hufn., *O. munda* Schiff., *Anticlea derivata* Schiff., *Trichopteryx carpinata* Borkh., *Selenia bilunaria* Esp., *Ectropis biundularia* de Vill. and *Diurnea fagella* F.

After a further round of the bushes near the main road, which have suffered badly from fires, the party dispersed at about 10.45 p.m. It had been an enjoyable, if disappointing, evening.

RIDDLESDOWN, SURREY—25th April 1969

Leader: Mr. J. M. CHALMERS-HUNT

A dry, sunny day with not too much wind was enjoyed by the party of 14 that attended this meeting. The occasion provided an opportunity for the Society to act as host to the Croydon Natural History Society, and it was with much pleasure that we were able to welcome at this meeting six of its members.

One of the main objects was to look for the larval mines of the attractive little tinoid, *Parectopa ononidis* Zell. This species is apparently very local, and though rather scarce, some ten tenanted mines were located in the leaves of *Trifolium*. The larva commences to feed in the centre of a central leaflet, making brown to white blotches in doing so, but moves readily from one leaf to another.

At the same time as we were searching for *P. ononidis* Zell., several micro pupae were found fully exposed, but attached by a silken thread to the undersides of *Trifolium* and *Poterium sanguisorba* L. leaves, and upon emergence of the imago proved to be those of *Elachista subnigrella* Dougl.

Beating juniper produced scores of larvae of *Eupithecia sobrinata* Hübn.; and a single fresh female *Ectropis biundularia* Borkh. (*bistortata* auct) was taken at rest on an oak trunk.

Other lepidopterous larvae noted were: *Plusia gamma* L., one on *Centaurea nigra* L.; *Euschesis janthina* Schiff., one under bramble; *Euphyia bilineata* L., one on dandelion.

Of the butterflies, several *Gonepteryx rhamni* L. and one *Vanessa urticae* L. were seen.

REVIEW

HYMENOPTERIST'S HANDBOOK. Demy 8vo, 160 pages, Amateur Entomologists' Society, 1969, 30s. 0d.

This is a facsimile edition of the volume which first appeared in 1945, and which has been out of print and much in demand for many years. Chapters cover most aspects of work in the Order: classification, field work, breeding, laboratory observation, setting, apiculture, etc.; and keys to suborders and superfamilies, and even down to genera in some cases.

The work is copiously illustrated and is a mine of information on the Order. The Amateur Entomologists' Society proposes to follow the publication of this volume with a supplement which will bring it up to date with relevant development since the original publication.

The Annual Exhibition of the Amateur Entomologists' Society will take place this year on Saturday, 27th September from 2 p.m. to 5 p.m., at Holland Park School, Airlie Gardens, Campden Hill, Kensington, W.8. Further details from 137, Gleneldon Road, Streatham, London, S.W.16.

The Society's Publications

Back numbers of the Society's Publications still in print are becoming scarce. We regret therefore that we have had to reassess their value and new prices have been agreed. These are as follows:—

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* These copies are very scarce and contain papers in great demand. Member's discount cannot therefore be allowed.

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MEETINGS OF THE SOCIETY

are held regularly at the Society's Rooms, but the well-known ANNUAL EXHIBITION takes place this year on November 1st in the Conversazione Room at the British Museum (Natural History). Frequent Field Meetings are held at weekends in the Summer. Visitors are welcome at all meetings. The current Programme Card can be had on application to the Secretary.

